

MACHINERY

MACHINISTS' TOOLS—SHOP EQUIPMENT

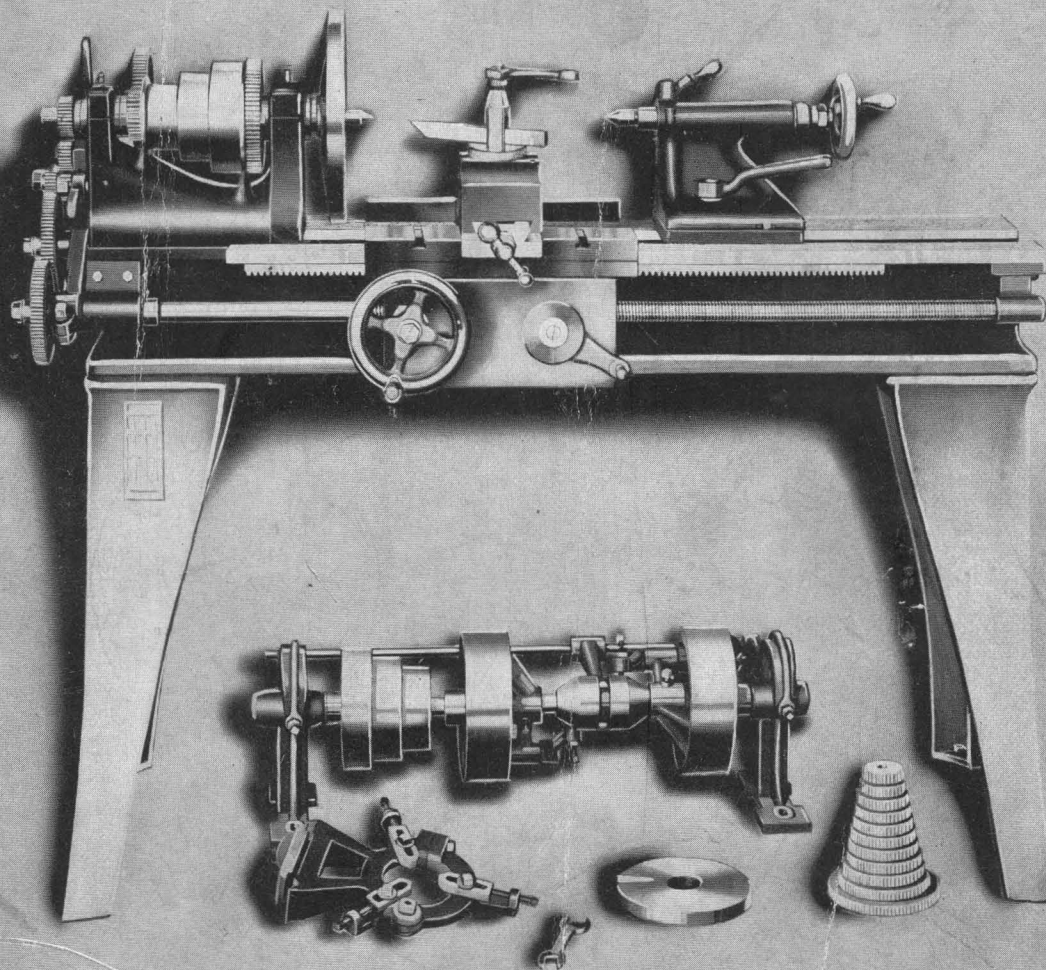
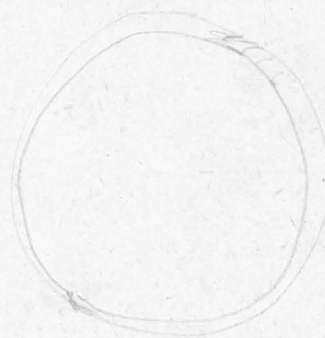


Illustration of Our No. 9M4800 12-Inch Lathe

SEARS, ROEBUCK AND CO.
CHICAGO

MACHINERY



MACHINERY

MACHINISTS' TOOLS — SHOP EQUIPMENT



THE Most complete line of small Screw Cutting Engine Lathes built. Our "Expert" Lathes are unsurpassed in material and workmanship. Heavy, rigid, powerful and accurate. Designed to take care of the mechanical problems in the modern shop.

Used by manufacturing plants, machine shops, garages, colleges, blacksmiths, manual training schools, repair shops, gun shops, and by skilled workmen of every profession.

The "Expert" Lathe is manufactured by an old reliable firm of machine tool builders who have had years of experience in building high grade accurate machinery of world wide reputation.

We offer in the "Expert" line of screw cutting engine lathes the most complete assortment of lathes built, varying in size from 9 to 13-inch swing inclusive, varying the length from 25 inches between centers to beds 8 feet long. Each "Expert" Lathe may be operated by countershaft or foot power, as desired. In ordering, specify which is wanted.

The "Expert" Lathes are practical in design, considerably heavier than the usual lathe of their size, as they are designed to meet the requirements necessary for the use of the modern high speed cutting steel. These lathes are in use in industrial plants of every size, from the large factory for manufacturing, to the small job shop for repair work, and the extra weight adds considerably to their value.

MATERIAL—All the material that enters into the construction of the different parts of the "Expert" Lathes is of the best quality that money can buy and experience can select.

GRINDING—All cylindrical parts of the "Expert" Lathes are ground. Head spindle and tail spindle are ground on a special machine designed for this purpose, and are ground accurately, the limit being less than one-thousandth of an inch. Grinding not only insures accuracy, but it is the practical method for finishing revolving bearing surfaces.

SCRAPING—All sliding and fitting surfaces are hand scraped to a master surface plate; for example, the bed is machined, allowed to season for two months, again machined, again seasoned, then hand scraped to a master surface plate. The headstock, tailstock and carriage are in turn scraped to the bed. This insures alignment, accuracy and perfect bearing, which means long life.

PHOSPHOR BRONZE BOXES—The bearings of the head spindle are of the best phosphor bronze, are large and heavy, the most desirable and toughest bearing metal known. These boxes, combined with a forged steel spindle, accurately ground, develop a stiffness to the lathe head capable of using high speed steel and taking large cuts. It is well known that the stiffness of a spindle has much to do in determining the power of a lathe.

WE ARE OFFERING THE BEST LATHE VALUES ON EARTH AND CAN SHIP THEM PROMPTLY.

REPAIRS—We have very few calls for repairs, as our machines are so well made that they do not wear out quickly, and when a repair part is wanted it is usually made necessary by an accident of some kind; but if at any time a part is wanted for any machine in this catalog, we can furnish it promptly and at a reasonable price.

TERMS AND HOW TO ORDER—Our terms are cash with order. Use the order blank which comes with this catalog, or if you have no order blank, use any sheet of plain paper, give the catalog numbers of the articles you select and enclose our price. The best way to send money is in the form of an express or postoffice money order, bank draft or the currency in a registered letter. If you have a checking account at a bank you may send us your personal check. We guarantee the arrival of every shipment in perfect condition. If for any reason you are not perfectly satisfied with the goods you receive, you are at liberty to return them any time within thirty days, and we will return the price and any freight charges you paid.

OUR THIRTY DAYS' TRIAL OFFER

Send us your order and enclose our price for any goods listed in this book and they will be shipped to you with the distinct understanding that if they should prove unsatisfactory in any way and are returned to us according to our instructions within thirty days from time you receive them, we will return the full amount paid, together with any transportation charges you paid. We can make this unparalleled offer because we know the quality of our machines and supplies and are sure that once you have tried them in your own shop you would not even consider trying to get along without them.

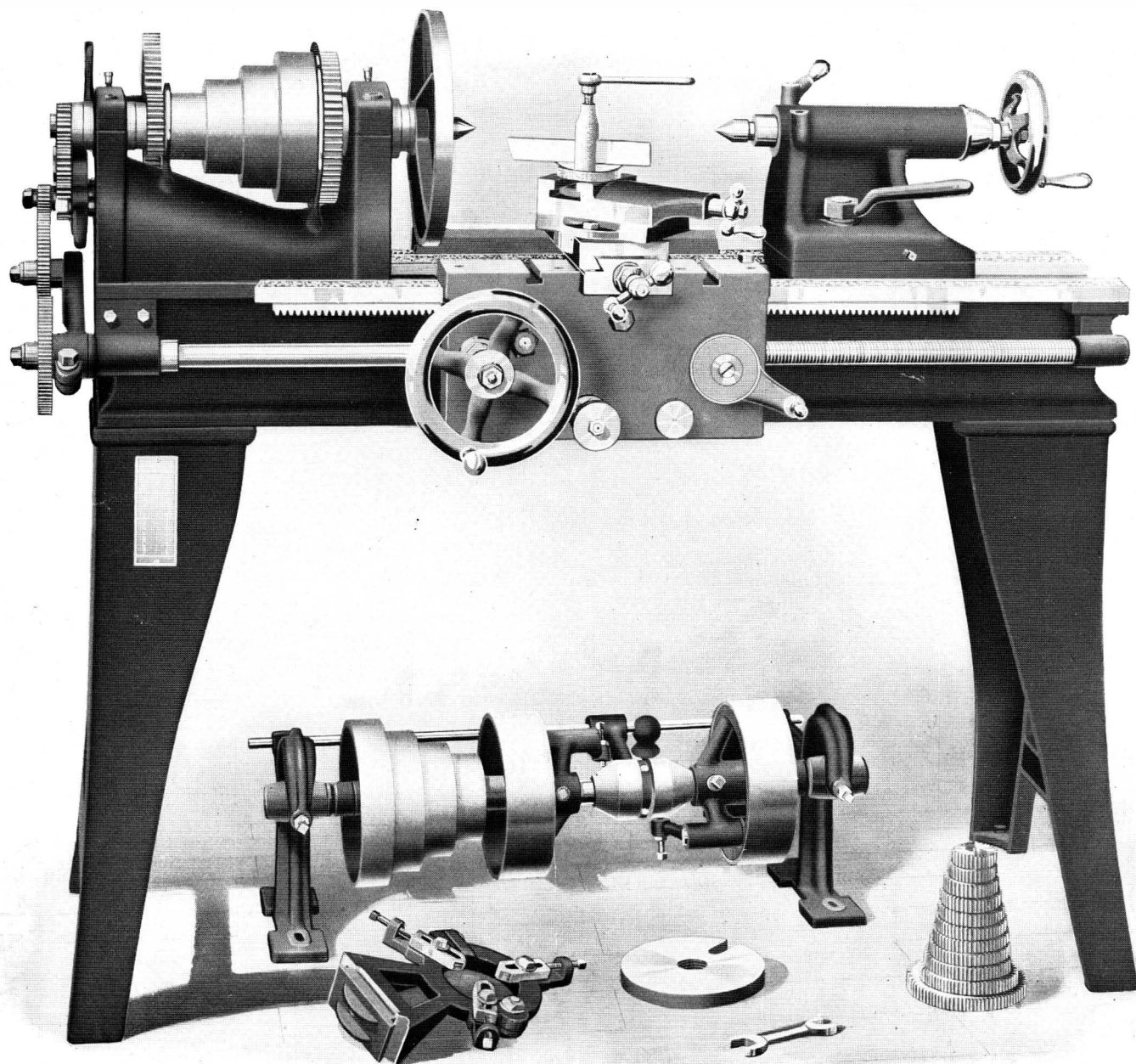
FREIGHT CHARGES AMOUNT TO VERY LITTLE—Compared with the saving we make for you the freight charges amount to very little. The heavier machines are shipped direct from the factory to you and our factories are centrally located. There is but one handling and one freight charge for you to pay. You can readily appreciate the fact that this direct method of handling goods, cutting out the profits and expenses that are always included in the prices on machines sold elsewhere, enables us to make you a big saving on any of these machines, even after you have paid the freight charges. Remember, too, that no matter from whom you buy machinery you are always obliged to pay the freight. If any dealer quotes you a delivered price you may be sure the price includes the freight. Dealers having machines shipped to them from the factory are obliged to pay the same freight rates as you pay when you get a machine from us, and they must include the freight in the price; besides, the price on the machines bought elsewhere frequently include more than one freight charge and handling expense, for they are frequently shipped to the dealer and then reshipped to the user. We guarantee to make you a big saving over and above all freight charges.

OUR QUALITY GUARANTEE

We guarantee every article listed in this catalog to be strictly high grade in every particular and to be the equal if not the superior of similar goods sold by others at much higher prices. In the making of our machines and supplies we use only the best quality materials. They are manufactured by high class skilled workmen and we offer them as the very best goods in their respective lines on the market. Should there be any defect in material or workmanship in any of these goods we will make it good by replacement or otherwise, without expense to our customers.

SEARS. ROEBUCK AND CO
CHICAGO

“Expert” 13-Inch Screw Cutting Engine Lathe



NUMBER
9M4775

FOUR-
FOOT
B E D

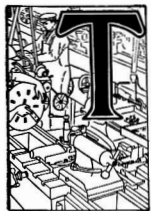
PRICE
\$150.00

For Full Detailed Description See Next Page.

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"Expert"

13-Inch Screw Cutting Engine Lathe

**THE BED**

THIS Lathe is equipped with power cross feed, longitudinal power feed and compound rest. It also has our improved reverse attached to head. The working parts of this lathe are extra heavy and very stiff. It is a manufacturing lathe in the strictest sense, capable of taking care, in a practical manner, of any work that comes within its capacity, in either the job shop or the manufacturing plant. It swings 13¼ inches over the bed, 8½ inches over the carriage, has a ¾-inch hole in spindle, No. 3 Morse taper. Tool post takes tool ½x1 inch.

The Bed has three V's and one flat bearing (see illustration and description on page 14), stiff, rigid and tied by cross braces cast in. Head is web pattern, strongly braced, has a four-step cone for 1½-inch belt, which with back gears gives eight changes of spindle speeds. It has forged steel spindle running in phosphor bronze boxes, adjustable for wear. Spindle nose is 1¾ inches in diameter by 8-thread.

HEAD-STOCK

Headstock is equipped with our improved reverse, so that threads right or left may be cut, or the carriage will feed right or left, being changed instantly in either direction. This reverse is illustrated and described more fully on page 14.

TAIL-STOCK

Tailstock is the improved curved under style, so as to allow compound rest to swing parallel with the axis of lathe. Tailstock has side movement for turning taper. Tail center is self ejecting.

CAR-RIAGE

Carriage has long bearing on the ways (see illustration and description on page 14), gibbed both back and front, and can be locked when using cross feed. Cross feed screw has micrometer graduated collar. Carriage has T slots so that work may be clamped when boring.

LEAD SCREW

Lead Screw is 1 inch in diameter, 8-thread, Acme standard, and cut from a master lead. Half nuts are proportionately large and stiff.

THE LATHE

The Lathe is indexed to cut standard threads from 4 to 40, as follows: 4, 5, 6, 7, 8, 9, 10, 11 (11½ pipe thread), 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 36 and 40. All the above threads may be cut without compounding gears, and by compounding with the gears furnished, numerous other threads may be cut if desired. Compounding gears 2 to 1 furnished, and with our reverse, right or left hand threads may be cut at an instant's change.

THE RACK

The Rack is of steel, one piece and cut from the solid. Rack pinion is also of steel. Gears are all machined from the solid and run smoothly and noiselessly. All working parts are carefully protected from chips and dirt.

COM-POUND REST

Compound Rest, shown on this lathe, has 3½-inch travel, is graduated in degrees, and swings way around, so that any angle may be instantly obtained. The dimensions are extra large, the rest is powerful and accurately built. This style compound rest is fitted to the 12-inch and 13-inch lathes (for more detailed description see page 13).

EQUIP-MENT

Equipment of lathe includes reverse, compound rest, power cross and longitudinal feeds, large and small face plates, center rest, two steel centers hardened and ground, change gears for screw cutting, necessary wrenches, also countershaft. Countershaft friction pulleys, 8x2½ inches. Speed, 225 revolutions per minute.

COUNTER-SHAFT

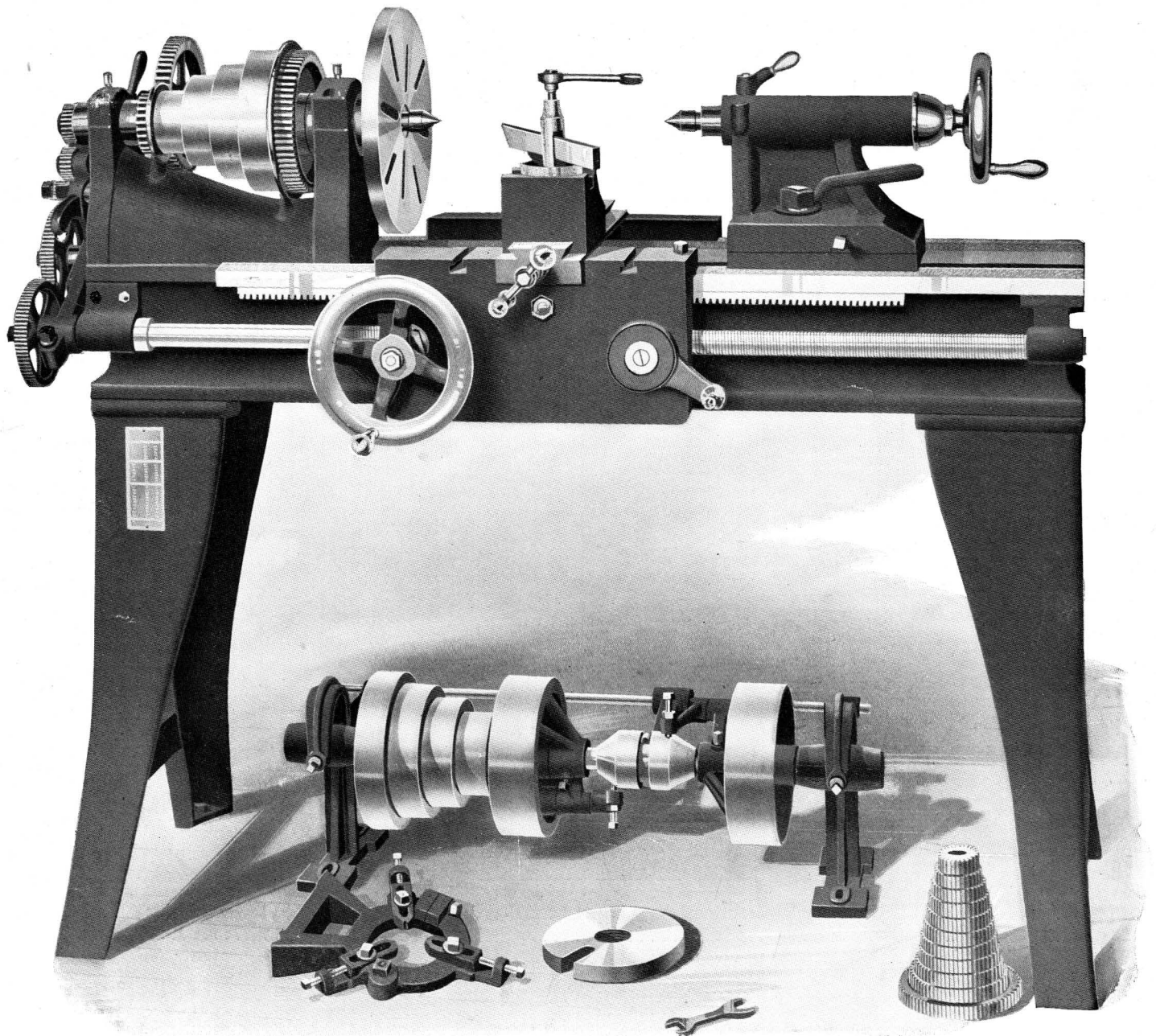
We do not list the 13-inch lathes with foot power, because on a lathe of this size countershaft is recommended. Foot power may be used if desired, price with foot power only being the same as price with countershaft.

Catalog Number		PRICE
9M4775	13-Inch Lathe. 4-foot bed, 22-inch centers, countershaft. Net weight, 675 pounds. Shipping weight, about 860 pounds. Price includes compound rest, power cross and longitudinal feeds and regular equipment.	\$150.00
9M4776	13-Inch Lathe. 5-foot bed, 34-inch centers, countershaft. Net weight, 725 pounds. Shipping weight, about 925 pounds. Price includes compound rest, power cross and longitudinal feeds and regular equipment.	\$159.00
9M4777	13-Inch Lathe. 6-foot bed, 46-inch centers, countershaft. Net weight, 775 pounds. Shipping weight, about 975 pounds. Price includes compound rest, power cross and longitudinal feeds and regular equipment.	\$170.00
9M4778	13-Inch Lathe. 7-foot bed, 58-inch centers, countershaft. Net weight, 825 pounds. Shipping weight, about 1,000 pounds. Price includes compound rest, power cross and longitudinal feeds and regular equipment.	\$181.00
9M4779	13-Inch Lathe. 8-foot bed, 70-inch centers, countershaft. Net weight, 880 pounds. Shipping weight, about 1,150 pounds. Price includes compound rest, power cross and longitudinal feeds and regular equipment.	\$192.00
9M4780	Raising Blocks, enabling operator to bore and turn 18-inch swing. Price, extra.	\$12.00

ALL GOODS ON THIS PAGE SHIPPED DIRECT FROM FACTORY NEAR CHICAGO, ILL.

SEARS.ROEBUCK AND CO.
CHICAGO

“Expert” 13-Inch Screw Cutting Engine Lathe



NUMBER
9M4785

FOUR-
FOOT
B E D

PRICE
\$125.00

ILLUSTRATION SHOWS LATHE EQUIPPED WITH PLAIN REST.

For Full Detailed Description See Next Page.

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"Expert"

13-Inch Screw Cutting Engine Lathe



THIS Lathe is exactly like our No. 9M4775, illustrated and described on pages 2 and 3, except it is not equipped with power cross and longitudinal feeds and compound rest. It is designed for heavy manufacturing and is capable of taking care, in a practical manner, of the heavy work that comes to the ordinary job shop. Lathe is equipped with our improved reverse. It swings $13\frac{1}{4}$ inches over the bed, $8\frac{1}{2}$ inches over the carriage, has a $\frac{3}{4}$ -inch hole in spindle, No. 3 Morse taper. Tool post takes tool $\frac{1}{2} \times 1$ inch.

THE BED

The Bed has three V's and one flat bearing (see illustration and description on page 14), it is strengthened by a number of cross ribs that are cast in solid, and is extra heavy to resist strain. Headstock is of the web pattern, with a well framed base. The spindle is of forged steel, running in phosphor bronze boxes of unusual weight, and arranged so that wear may be taken up. The diameter of the spindle nose is $1\frac{3}{4}$ inches in diameter by 8-thread, being extra large to take care of heavy work. Cone has four steps for $1\frac{1}{2}$ -inch belt, is finished inside and out and carefully balanced so that it will run true. This with back gears gives it eight changes of spindle speeds.

HEAD-STOCK

Headstock is equipped with our improved reverse, so that threads right or left may be cut, or the carriage will feed right or left, being changed instantly in either direction. This reverse is illustrated and described more fully on page 14.

TAIL-STOCK

Tailstock is extra heavy, of the improved pattern curved under style, to allow compound rest to swing around. It is also arranged for set over for turning taper. Tail center is self ejecting, and the hand wheel is equipped with machine handle.

CAR-RIAGE

Carriage has long bearings on the ways, is very wide in the bridge, is gibbed both back and front, and can be locked when using cross feed. The carriage is fitted with T slots so that work may be clamped for boring. The cross feed screw is equipped with micrometer graduated collar reading in one-thousandths of an inch and is adjustable.

THE LATHE

The Lathe is indexed to cut standard threads from 4 to 40, as follows: 4, 5, 6, 7, 8, 9, 10, 11 ($11\frac{1}{2}$ pipe thread), 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 36 and 40. All the above threads may be cut without compounding gears, and by compounding with the gears furnished numerous other threads may be cut if desired. Compounding gears 2 to 1 furnished, and with our reverse, right or left hand threads may be cut at an instant's change.

THE RACK

The Rack is of steel, one piece and cut from the solid. Rack pinion is also of steel. Gears are all machined from the solid and run smoothly and noiselessly. All working parts are carefully protected from chips and dirt.

LEAD SCREW

Lead Screw is 1 inch in diameter, 8-pitch, Acme standard, and is cut from a master lead. The half nuts are strong in proportion, as may be seen in illustration of apron of 13-inch lathe (see page 14).

EQUIP-MENT

Equipment of lathe includes plain or compound rest as ordered, reverse, large and small face plates, two steel centers hardened and ground, center rest, change gears for screw cutting, necessary wrenches, and countershaft. Countershaft friction pulleys, size $8 \times 2\frac{1}{2}$ inches. Speed, 225 revolutions per minute.

We do not list the 13-inch lathes with foot power, because on a lathe of this size countershaft is recommended.

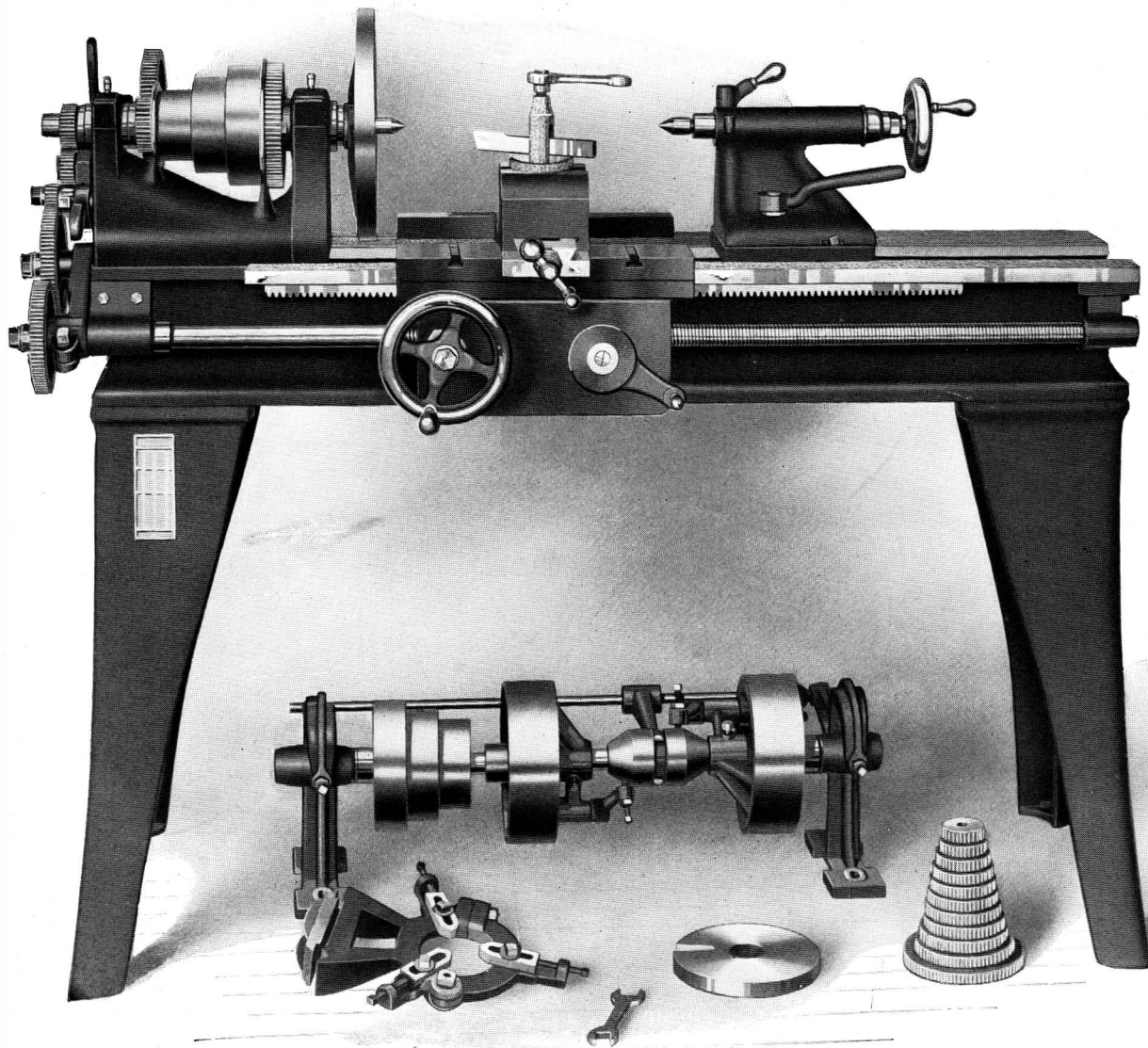
Foot power may be used if desired, price with foot power only being the same as price with countershaft.

Catalog Number		PRICE	Net Weight, About, Lbs.	Shipping Weight, About, Lbs.
9M4785	13-Inch Lathe. 4-foot bed, 22-inch centers,	\$125.00, with plain rest, countershaft.....	650	825
9M4786	13-Inch Lathe. 4-foot bed, 22-inch centers,	137.00, with compound rest, countershaft....	650	825
9M4787	13-Inch Lathe. 5-foot bed, 34-inch centers,	136.00, with plain rest, countershaft.....	700	900
9M4788	13-Inch Lathe. 5-foot bed, 34-inch centers,	148.00, with compound rest, countershaft....	700	900
9M4789	13-Inch Lathe. 6-foot bed, 46-inch centers,	147.00, with plain rest, countershaft.....	750	950
9M4790	13-Inch Lathe. 6-foot bed, 46-inch centers,	159.00, with compound rest, countershaft....	750	950
9M4791	13-Inch Lathe. 7-foot bed, 58-inch centers,	158.00, with plain rest, countershaft.....	800	1,000
9M4792	13-Inch Lathe. 7-foot bed, 58-inch centers,	170.00, with compound rest, countershaft....	800	1,000
9M4793	13-Inch Lathe. 8-foot bed, 70-inch centers,	169.00, with plain rest, countershaft.....	850	1,100
9M4794	13-Inch Lathe. 8-foot bed, 70-inch centers,	181.00, with compound rest, countershaft....	850	1,100
9M4795	Raising Blocks. Price, extra.....	12.00, enabling operator to turn and bore 18-inch swing.		

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SEARS. ROEBUCK AND CO
CHICAGO

"Expert" 12-Inch Screw Cutting Engine Lathe



NUMBER
9M4800

FOUR-
FOOT
B E D

PRICE
\$100.00

ILLUSTRATION SHOWS LATHE EQUIPPED WITH PLAIN REST.

For Full Detailed Description See Next Page.

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"Expert"

12-Inch Screw Cutting Engine Lathe



THE BED

THIS Lathe is principally used for manufacturing, or in the job shop where the work is heavy, it being a substantial, well built lathe of large proportions. It is capable of taking care in a practical manner of all the work and mechanical requirements of the modern job shop. It has the accuracy, strength and the capacity. This lathe swings 12¼ inches over the bed, 8 inches over the carriage, has a ⅝-inch hole in spindle, No. 2 Morse taper. Tool post takes ⅞x⅞-inch tool.

The Bed has three V's and one flat bearing (see illustration and description on page 14), and is especially wide and stiff, braced with numerous crossbars cast in solid. The headstock is web pattern, extra heavy, and has forged steel spindle running in phosphor bronze boxes. These boxes are adjustable so that wear may be taken up when necessary. The spindle nose is 1½ inches in diameter by 8-thread, which is especially large for a lathe of this size. Cone has three steps for 1½-inch belt. Cone is finished inside and out and is balanced so that it will run true at high speed. The back gears give six changes of spindle speeds.

HEAD-STOCK

Headstock is equipped with our improved reverse, so that threads right or left may be cut, or the carriage will feed right or left, being changed in either direction instantly without changing a gear. This reverse is illustrated and described more fully on page 14.

TAIL-STOCK

Tailstock is of the improved curved under style to allow compound rest to swing over so that it may be used parallel with the axis of lathe. Tailstock has a side movement for turning taper. Tail center is self ejecting, and tail balance wheel is equipped with machine handle for drilling, etc.

CAR-RIAGE

Carriage has long bearings on the ways, as well as a wide bearing on the bed, and is gibbed both back and front and can be locked when using cross feed. Carriage is fitted with T slots so that work may be

THE LATHE

clamped for boring. Cross feed screw is fitted with micrometer graduated collar reading in one-thousandths of an inch. This collar is adjustable.

The Lathe is indexed to cut standard threads from 4 to 40, as follows: 4, 5, 6, 7, 8, 9, 10, 11 (11½ pipe thread), 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 36 and 40. All the above threads may be cut without compounding gears, and by compounding with the gears furnished, numerous other threads may be cut if desired. Compounding gears 2 to 1 furnished, and with our reverse, right or left hand threads may be cut at an instant's change.

THE RACK

The Rack is of steel, one piece and cut from the solid. Rack pinion is also of steel. Gears are all machined from the solid and run smoothly and noiselessly. All working parts are carefully protected from chips and dirt.

LEAD SCREW

The Lead Screw on the 12-inch lathe is 1 inch in diameter by 8-thread (Acme standard), and is cut from a master lead. The apron nut which clamps lead screw is also large, so that the carriage drive is powerful and tool will take a heavy cut.

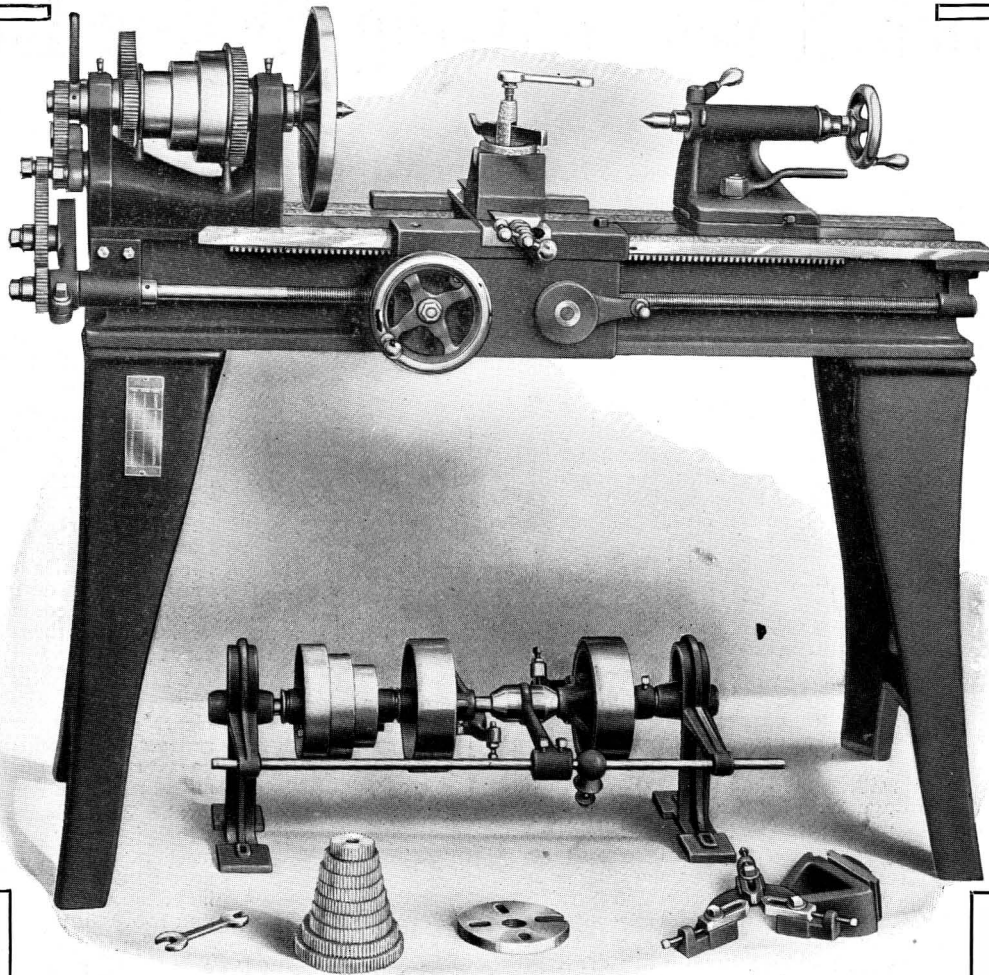
EQUIP-MENT

Equipment of this lathe includes plain or compound rest as ordered, reverse, large and small face plates, two steel centers hardened and ground, center rest, change gears for screw cutting, necessary wrenches, also countershaft or foot power as ordered. Countershaft friction pulleys, size 8x2½ inches. Speed, 225 revolutions per minute.

Catalog Number		PRICE	Net Weight, About, Lbs.	Shipping Wt., About, Lbs.
9M4800	12-Inch Lathe, 4-foot bed, 24-inch centers,	\$100.00, with plain rest, countershaft.....	510	625
9M4801	12-Inch Lathe, 4-foot bed, 24-inch centers,	111.00, with compound rest, countershaft.....	510	625
9M4802	12-Inch Lathe, 4-foot bed, 24-inch centers,	100.00, with plain rest, foot power.....	510	625
9M4803	12-Inch Lathe, 4-foot bed, 24-inch centers,	111.00, with compound rest, foot power.....	510	625
9M4804	12-Inch Lathe, 5-foot bed, 36-inch centers,	110.00, with plain rest, countershaft.....	550	675
9M4805	12-Inch Lathe, 5-foot bed, 36-inch centers,	121.00, with compound rest, countershaft.....	550	675
9M4806	12-Inch Lathe, 5-foot bed, 36-inch centers,	110.00, with plain rest, foot power.....	550	675
9M4807	12-Inch Lathe, 5-foot bed, 36-inch centers,	121.00, with compound rest, foot power.....	550	675
9M4808	12-Inch Lathe, 6-foot bed, 48-inch centers,	120.00, with plain rest, countershaft.....	590	720
9M4809	12-Inch Lathe, 6-foot bed, 48-inch centers,	131.00, with compound rest, countershaft.....	590	720
9M4810	12-Inch Lathe, 6-foot bed, 48-inch centers,	120.00, with plain rest, foot power.....	590	720
9M4811	12-Inch Lathe, 6-foot bed, 48-inch centers,	131.00, with compound rest, foot power.....	590	720
9M4812	12-Inch Lathe, 7-foot bed, 60-inch centers,	130.00, with plain rest, countershaft.....	640	775
9M4813	12-Inch Lathe, 7-foot bed, 60-inch centers,	141.00, with compound rest, countershaft.....	640	775
9M4814	12-Inch Lathe, 7-foot bed, 60-inch centers,	130.00, with plain rest, foot power.....	640	775
9M4815	12-Inch Lathe, 7-foot bed, 60-inch centers,	141.00, with compound rest, foot power.....	640	775
9M4816	12-Inch Lathe, 8-foot bed, 72-inch centers,	140.00, with plain rest, countershaft.....	690	825
9M4817	12-Inch Lathe, 8-foot bed, 72-inch centers,	151.00, with compound rest, countershaft.....	690	825
9M4818	12-Inch Lathe, 8-foot bed, 72-inch centers,	140.00, with plain rest, foot power.....	690	825
9M4819	12-Inch Lathe, 8-foot bed, 72-inch centers,	151.00, with compound rest, foot power.....	690	825
9M4820	Raising Blocks. Price, extra.....	11.00, enabling operator to turn and bore 15-inch swing.		

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"Expert" 11-Inch Screw Cutting Engine Lathe



NUMBER
9M4821

PRICE
\$88.00

Illustration Shows Lathe, 4-Foot Bed, Equipped With Plain Rest.

THIS Lathe is the best lathe value in the country. It is equally good in the job shop, the tool room or for manufacturing purposes. This lathe swings 11¼ inches over the bed, 7¾ inches over the carriage, has a ⅝-inch hole in spindle, No. 2 Morse taper. Tool post takes tools ⅜x¾ inch.

THE BED

The Bed has three V's and one flat bearing (see illustration and description on page 14) and is especially wide and stiff, being stiffened with numerous crossbars cast in solid. Headstock has forged steel spindle, running in bronze boxes, arranged so that wear may be taken up. Diameter of spindle nose is 1½ inches by 8-thread. Cone has three steps for 1¼-inch belt, is finished inside and out, and balanced so it will run true at high speed. The back gears give it six changes of spindle speeds.

HEAD-STOCK

The Headstock has the improved reverse, so that threads right or left may be cut, carriage may feed right or left without changing a gear. This reverse is illustrated and described on page 14.

TAIL-STOCK

The Tailstock is the improved curved under style to allow the compound rest to swing over. Tailstock has side movement for turning taper, tail center is self ejecting, also oil well for centers. Tail balance wheel is equipped with handle for drilling, etc.

CARRIAGE

Carriage has long bearings on the ways, and is gibbed both back and front and can be locked when using cross feed. Cross feed screw is fitted with micrometer graduated collar, reading in one-thousandths of an inch.

THE LATHE

The Lathe is indexed to cut standard threads from 4 to 40, as follows: 4, 5, 6, 7, 8, 9, 10, 11 (1½ pipe thread), 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 36 and 40. All the above threads may be cut without compounding gears, and by compounding with the gears furnished, numerous other threads may be cut if desired. Compounding gears 2 to 1 furnished, and with our reverse right or left hand threads may be cut at an instant's change.

THE RACK

The Rack is of steel, one piece and cut from the solid. Rack pinion is also of steel. Gears are machined from the solid and run smoothly and noiselessly. All working parts are carefully protected from chips and dirt.

LEAD SCREW

The Lead Screw is ¾ inch in diameter by 8-thread (Acme Standard), half nuts are especially large and strong, having extra wide sliding surface. See illustration of apron of 13-inch lathe on page 14. Lead screw fitted with half nut of this proportion gives a powerful carriage drive capable of taking heavy cuts.

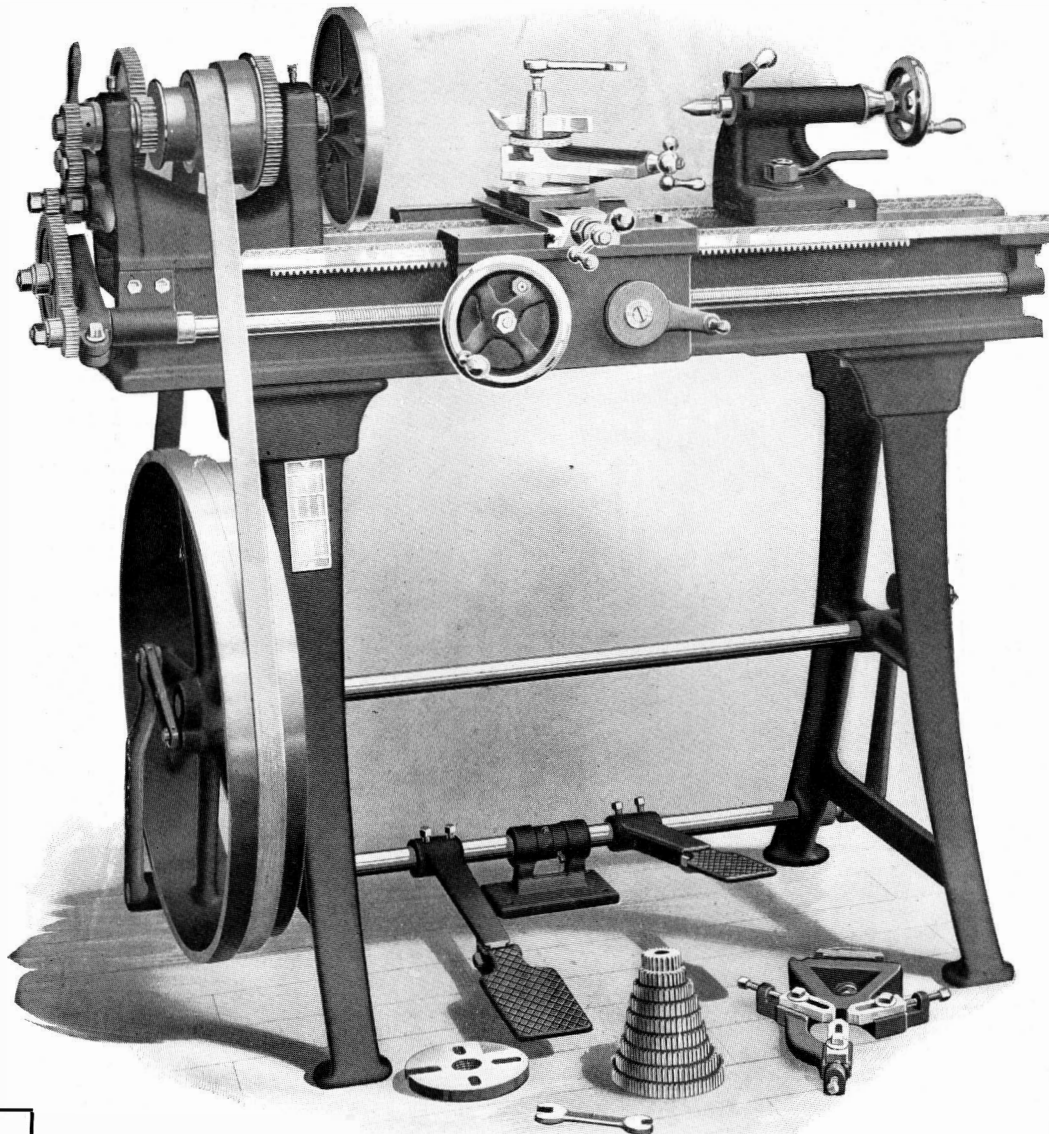
EQUIPMENT

Equipment of this lathe includes plain or compound rest as ordered, reverse, large and small face plates, two steel centers hardened and ground, center rest, change gears for screw cutting, necessary wrenches, also foot power or countershaft as ordered. Countershaft friction pulleys, size 7x2 inches. Speed, 225 revolutions per minute.

Catalog No.		PRICE		Net Weight, About, Lbs.	Shipping Wt., About, Lbs.
9M4821	11-Inch Lathe, 4-foot bed, 26-inch centers,	\$88.00.	with plain rest, countershaft.	440	550
9M4822	11-Inch Lathe, 4-foot bed, 26-inch centers,	\$88.00.	with compound rest countershaft.	440	550
9M4823	11-Inch Lathe, 4-foot bed, 26-inch centers,	\$88.00.	with plain rest, foot power.	440	550
9M4824	11-Inch Lathe, 4-foot bed, 26-inch centers,	\$88.00.	with compound rest, foot power.	440	550
9M4825	11-Inch Lathe, 5-foot bed, 38-inch centers,	\$97.00.	with plain rest, countershaft.	475	585
9M4826	11-Inch Lathe, 5-foot bed, 38-inch centers,	\$107.00.	with compound rest, countershaft.	475	585
9M4827	11-Inch Lathe, 5-foot bed, 38-inch centers,	\$97.00.	with plain rest, foot power.	475	585
9M4828	11-Inch Lathe, 5-foot bed, 38-inch centers,	\$107.00.	with compound rest, foot power.	475	585
9M4829	11-Inch Lathe, 6-foot bed, 50-inch centers,	\$106.00.	with plain rest, countershaft.	525	650
9M4830	11-Inch Lathe, 6-foot bed, 50-inch centers,	\$116.00.	with compound rest, countershaft.	525	650
9M4831	11-Inch Lathe, 6-foot bed, 50-inch centers,	\$106.00.	with plain rest, foot power.	525	650
9M4832	11-Inch Lathe, 6-foot bed, 50-inch centers,	\$116.00.	with compound rest, foot power.	525	650
9M4833	Raising Blocks. Price, extra.	10.00.	enabling operator to turn and bore. 14-inch swing.		

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"Expert" 11-Inch Screw Cutting Engine Lathe



NUMBER
9M4824

PRICE
\$98.00

Illustration shows Lathe, 4-foot bed, equipped with foot power.



THIS LATHE is identically the same as Lathe No. 9M4821 on page 8, with the exception of foot power and compound rest, so that description of Lathe No. 9M4821 will apply in every way to this lathe with these two exceptions.

The above illustration shows our improved **Duplex Positive Drive Foot Power**, powerful in delivery, easy in operation, and is without doubt the simplest, strongest and most efficient foot power on the market. The cone pulley not only acts as the drive, but also as a balance wheel. The two foot treadles are adjustable and may be locked at any position desired along the lower shafts. These treadles are attached at different angles, and operate on the walking beam principle, so that the operator may sit or stand up, using one or both feet, as desired, while operating the lathe. The balance wheel shaft takes its power at both ends of the lathe alternately. This allows an equal constant drive, which develops great power with surprising ease of operation.

Another advantage of the **Duplex Foot Power** is that its efficiency does not vary with length of the lathe bed, for the power is always applied at both ends of the center shaft on the outside of the legs. The improved Duplex Foot Power is used for driving all sizes of lathes, driving the 12-inch with the same ease as the 9-inch, taking care of the 8-foot bed with the same practical efficiency as that of the 4-foot bed, differing only in weight and dimensions for the different size lathes.

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“Expert” 10-Inch Screw Cutting Engine Lathe

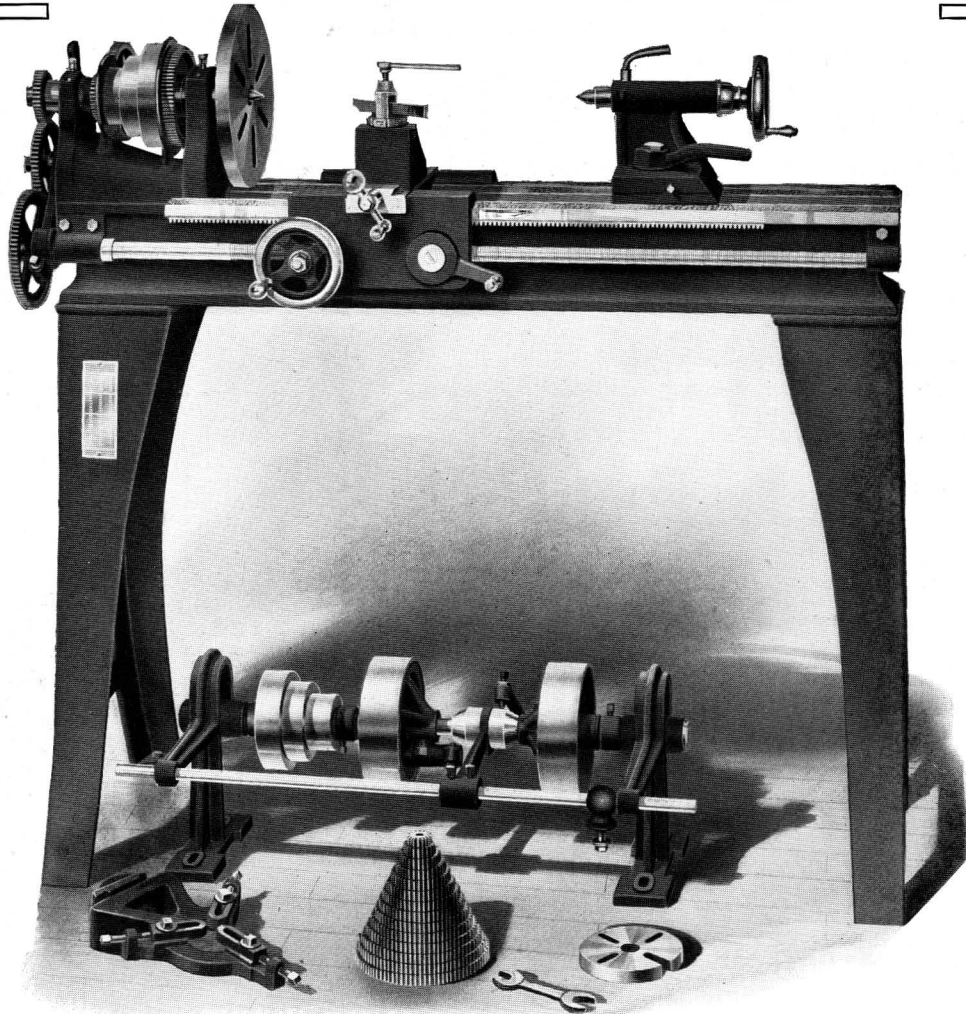


Illustration Shows Lathe Equipped with Plain Rest.

NUMBER
9M4834
FORTY-TWO
INCH BED
PRICE
\$68.00

THIS is a very popular lathe for experimental work, being heavy, strong, stiff and accurate. Swings $10\frac{1}{4}$ inches over the ways, 7 inches over the carriage, has a 13-32-inch hole in spindle, No. 1 Morse taper, tool post takes tools $\frac{3}{8} \times \frac{5}{8}$ inch. Spindle nose, $1\frac{1}{8}$ inches in diameter by 10-inch thread.

BED
**HEAD-
STOCK**
**TAIL-
STOCK**
**CAR-
RIAGE**
LATHE

Bed has three V's and one flat bearing, is thoroughly braced, having several cross ribs cast in.

Headstock has forged steel spindle, bronze boxes, adjustable for wear. Cone has three steps for 1-inch belt, finished and balanced.

Tailstock is the improved curved under style, so that compound rest may swing around, sets over for turning taper, self ejecting tail center.

Carriage is gibbed to bed both back and front, and may be locked when using cross feed. Cross feed screw has micrometer graduated collar, reading in one-thousandths of an inch.

The Lathe is indexed to cut standard threads from 4 to 40, as follows: 4, 5, 6, 7, 8, 9, 10, 11 ($11\frac{1}{2}$ pipe threads), 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 36 and 40. All the above threads may be cut without compounding gears,

RACK
LEAD
SCREW
**EQUIP-
MENT**

and by compounding with the gears furnished, numerous other threads may be cut if desired. Compounding gears 2 to 1 furnished.

The Rack is of steel, one piece and cut from the solid.

Lead Screw is $\frac{3}{4}$ inch in diameter and cut from a master lead. The half nut in apron has same construction as half nut shown in illustration of 13-inch lathe apron (see page 14). Apron and tailstock hand wheels are fitted with machine handles.

Equipment includes plain or compound rest as ordered, large and small face plates, two steel centers, hardened and ground, center rest, change gears for screw cutting, necessary wrenches, also countershaft or foot power. Countershaft friction pulleys, size 7x2 inches. Speed, 250 revolutions per minute.

Catalog Number			PRICE			Net Weight, About, Lbs.	Shipping Wt., About, Lbs.
9M4834	10-Inch Lathe.	42-inch bed, 24-inch centers,	\$68.00,	with plain rest, countershaft.....		375	450
9M4835	10-Inch Lathe.	42-inch bed, 24-inch centers,	77.00,	with compound rest, countershaft.....		375	450
9M4836	10-Inch Lathe.	42-inch bed, 24-inch centers,	68.00,	with plain rest, foot power.....		375	450
9M4837	10-Inch Lathe.	42-inch bed, 24-inch centers,	77.00,	with compound rest, foot power.....		375	450
9M4838	10-Inch Lathe.	54-inch bed, 36-inch centers,	78.00,	with plain rest, countershaft.....		400	490
9M4839	10-Inch Lathe.	54-inch bed, 36-inch centers,	87.00,	with compound rest, countershaft.....		400	490
9M4840	10-Inch Lathe.	54-inch bed, 36-inch centers,	78.00,	with plain rest, foot power.....		400	490
9M4841	10-Inch Lathe.	54-inch bed, 36-inch centers,	87.00,	with compound rest, foot power.....		400	490
9M4842	Raising Blocks.	Price, extra.....	9.00,	enabling operator to turn and bore 13-inch swing.			

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"Expert" 9-Inch Screw Cutting Engine Lathes

9-Inch Long Leg Lathe



THE BED

THIS Lathe swings $9\frac{1}{4}$ inches over the bed, 6 inches over the carriage, takes 26 inches between centers, has a 13-32-inch hole in spindle, No. 1 Morse taper. Diameter of spindle nose, $1\frac{1}{8}$ inch by 10-thread. Tool post takes tool $5-16 \times \frac{5}{8}$ inch.

The Bed has three V's and one flat bearing, is thoroughly tied with cross braces cast in. Head has forged steel spindle, bronze boxes, arranged for wear. Cone has three steps for 1-inch belt, finished and balanced. Tailstock is improved curved under style, side movement for turning taper, self ejecting tail center. Carriage is gibbed both back and front, and can be locked when using cross feed. Cross feed screw has micrometer graduated collar reading in one-thousandths of an inch.

THE LATHE

The lathe is indexed to cut standard threads from 4 to 40 as follows: 4, 5, 6, 7, 8, 9, 10, 11, ($11\frac{1}{2}$ pipe thread), 12, 13, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 36 and 40. All the above threads may be cut without compounding, and by compounding with the gears furnished, numerous other threads may be cut if desired. Compounding gears 2 to 1 furnished.

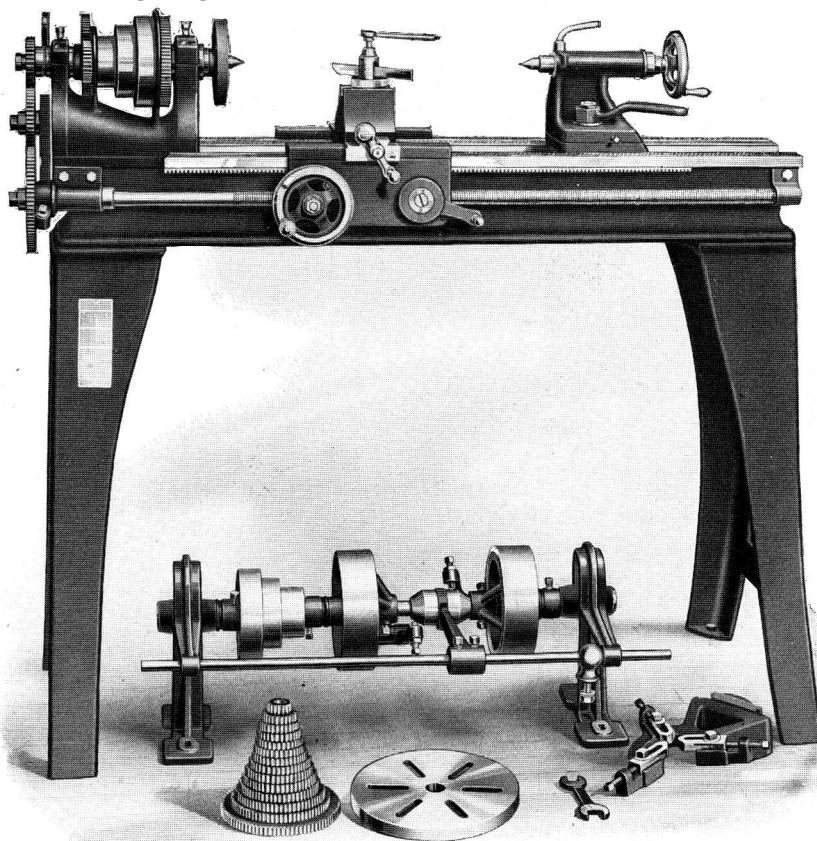
LEAD SCREW

Lead Screw is $\frac{3}{4}$ inch in diameter and is cut from a master lead. Apron and tailstocks both have hand wheels, fitted with machine handles.

EQUIP- MENT

Equipment includes plain or compound rest as ordered, large and small face plates, two steel centers hardened and ground, center rest, change gears for screw cutting, necessary wrenches, also either foot power or countershaft. Countershaft friction pulleys, size 7x2 inches. Speed, 250 revolutions per minute.

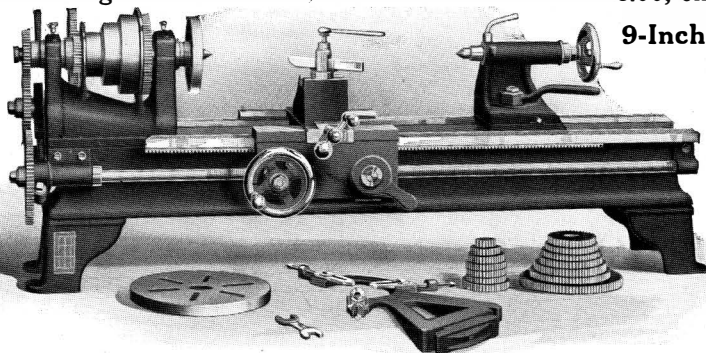
This lathe is built in one size only.



No. 9M4843 Illustration shows Lathe equipped with Plain Rest.

Catalog Number		PRICE	Net Weight, Shipping Wt.,	
			About Lbs.	About Lbs.
9M4843	9-Inch Lathe. 42-inch bed, 26-inch centers.	\$63.00, with plain rest, countershaft.....	325	400
9M4844	9-Inch Lathe. 42-inch bed, 26-inch centers.	71.00, with compound rest, countershaft....	325	400
9M4845	9-Inch Lathe. 42-inch bed, 26-inch centers.	63.00, with plain rest, foot power.....	325	400
9M4846	9-Inch Lathe. 42-inch bed, 26-inch centers.	71.00, with compound rest, foot power.....	325	400
9M4847	Raising Blocks. Price, extra.....	8.00, enabling operator to turn and bore 12-inch swing.		

9-Inch Bench Lathe

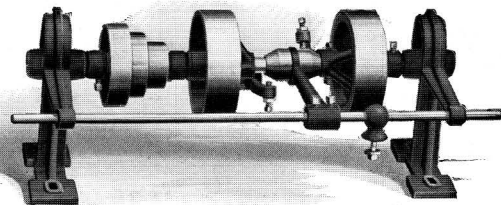


No. 9M4848 Illustration shows Lathe equipped with Plain Rest.

This is our regular 9-inch lathe on short legs. The description of the 9-inch lathe with long legs, also on this page, applies to this lathe in every way with the exception of the legs.

This lathe is made in but one size, 26 inches between centers.

Catalog Number		PRICE	Net Weight, Shipping Wt.,	
			About Lbs.	About Lbs.
9M4848	9-Inch Bench Lathe. 42-inch bed, 26-inch centers.	\$60.00, with plain rest, countershaft.....	250	310
9M4849	9-Inch Bench Lathe. 42-inch bed, 26-inch centers.	68.00, with compound rest, countershaft.	250	310



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"Expert" 13-Inch Screw Cutting Engine Lathe

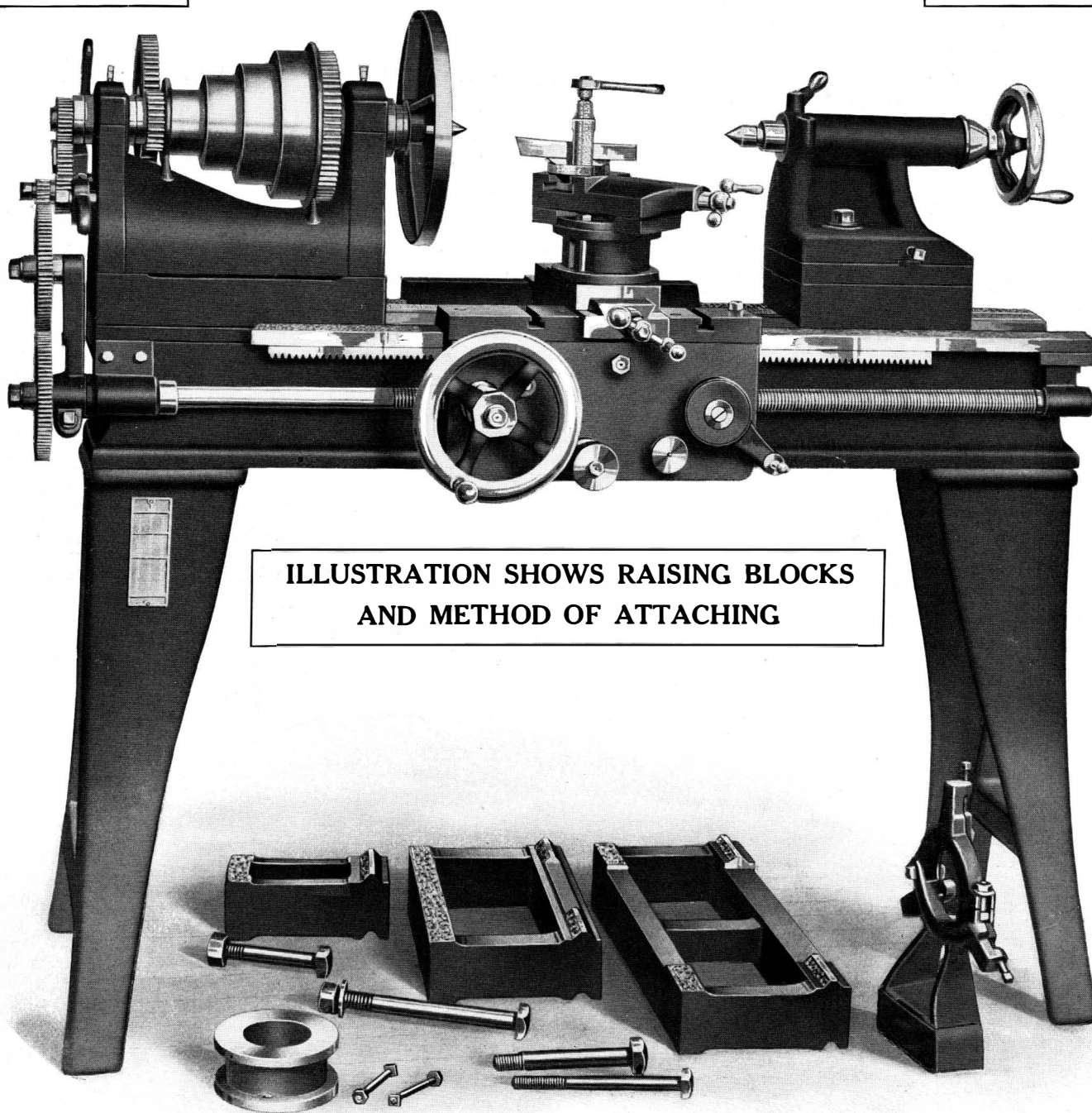
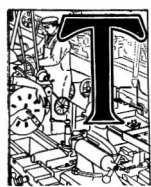


ILLUSTRATION SHOWS RAISING BLOCKS
AND METHOD OF ATTACHING



THE above illustration shows our 13-inch "Expert" Lathe, equipped with raising blocks so that it will turn and bore 18-inch swing. The illustration underneath lathe shows the raising blocks before being applied to lathe. The same general plan of construction is used in raising blocks for all sizes of "Expert" Lathes.

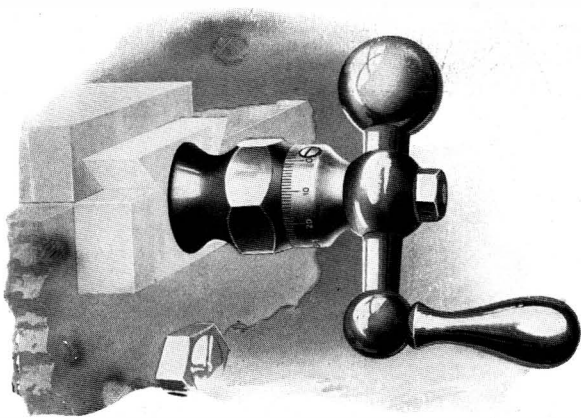
The headstock, tailstock and tool rest, also center rest, are all blocked up. This is a more satisfactory way of getting increased swing than that of furnishing a gap in the lathe, as by the raising blocks we get the advantage of the increased swing the entire distance between centers.

A set of raising blocks includes blocks for raising the headstock, tailstock, tool rest and center rest, also the necessary bolts and nuts for attaching blocks to lathe.

Raising blocks are extra. Prices vary for each size lathe. See prices under description of lathes.

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ENLARGED ILLUSTRATIONS OF PARTS



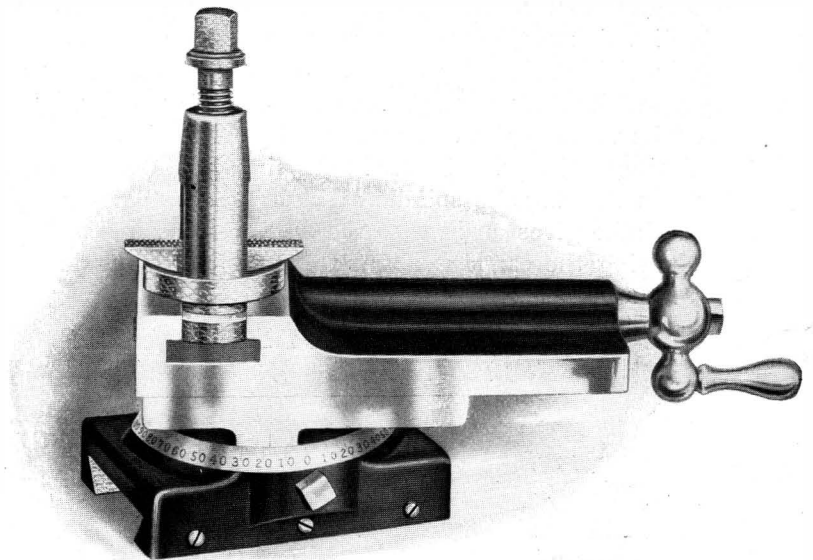
Micrometer Graduated Collar

The illustration to the left shows the graduated collar which is attached to cross feed screws on all sizes of "Expert" Lathes. This collar has micrometer graduations, each graduation reading in one-thousandths of an inch. It is so arranged that it may be set at zero whenever desired. This is a valuable feature in getting a certain depth and in thread cutting, or in any accurate work.

Compound Rest

For 9, 10 and 11-Inch Lathes

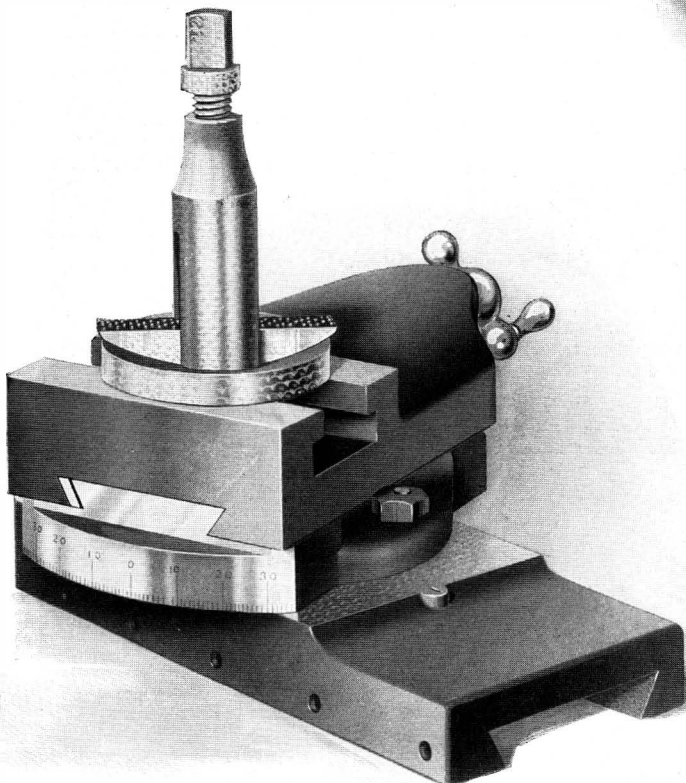
This style rest is used on our 9, 10 and 11-inch lathes, differing only in dimensions for the different lathes. It is large in proportions, stiff and strong, carefully built and accurately fitted, and has a cross travel of $2\frac{1}{2}$ inches. The swivel is graduated in degrees so that it may be set accurately at any angle. Adjustment feature is simple and positive and may be locked or unlocked instantly.



Compound Rest

For 12 and 13-Inch Lathes

This style rest is used on the 12 and 13-inch lathes and is graduated in degrees, is large and powerful and accurately built. Has a cross travel of $3\frac{1}{2}$ inches, may be set at any angle, is simple in adjustment and conforms in every way to the accuracy of the lathe. From illustration it will be noted that the compound rest on 12 and 13-inch "Expert" Lathes is in addition to and entirely independent of the cross feed screws.



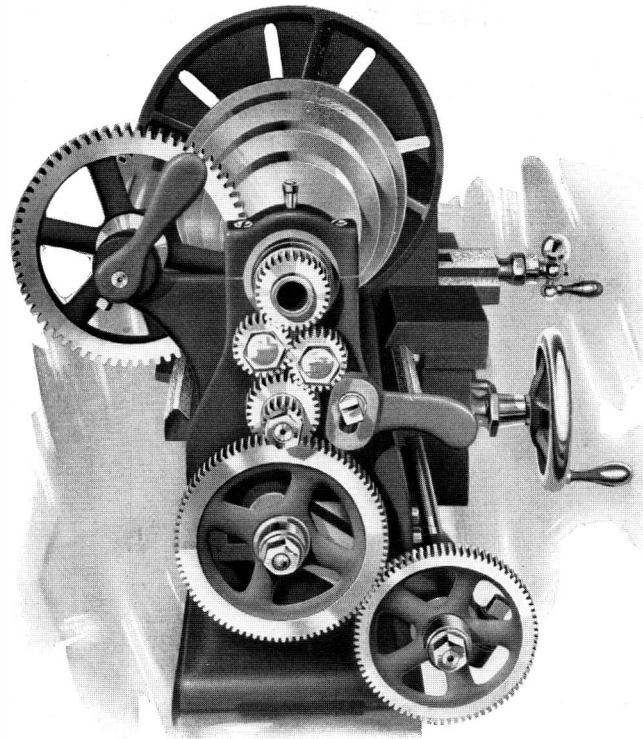
ENLARGED ILLUSTRATIONS OF PARTS

Reverse Mechanism

The illustration shows an end view of an 11-inch "Expert" Lathe, in which may be seen the improved reverse arrangement, solid and substantial, attached to the outside of the head, within easy reach of the operator. This position overcomes the coring and weakening of the head by having the reverse on the inside, and allows easy access for oiling.

The Reverse is used on the 11, 12 and 13-inch lathes, and with it the direction of the lead screw may be changed right or left instantly without changing a gear. 9 and 10-inch lathes are not equipped with this reverse. The reverse is a very desirable feature and its value is so well known to the mechanic that it needs no further description here. It may be set in a neutral position when running the spindle at high speed. This end view of the lathe gives an idea of the width of the carriage bearing, showing the carriage alignment on the two outside V's of the lathe bed.

9 AND 10-INCH LATHES ARE NOT FITTED WITH REVERSE.



Sectional View of Lathe Bed

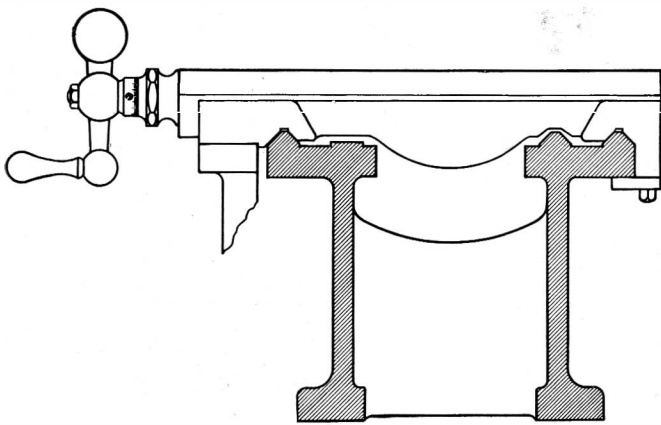


Illustration shows the construction of bed of all size "Expert" Lathes. The design is exactly the same on all sizes, differing only in dimensions for the different size lathes. Note the three V's and one flat bearing. This is the practical construction of all high class lathe beds, from 9 to 36-inch swing. The bed being wide at top allows great distance between the outside V's. This insures a rigid carriage, capable of doing powerful work. Note the thickness of the V's at the base. This insures a substantial bearing. The inside V and flat bearing align the head and tailstock. The flat bearing in front allows greater depth to the carriage, making it stronger at that point.

The bed is machined, allowed to season, again machined, again seasoned, and then hand scraped. The carriage is then hand scraped on to the V's. The head and tailstock are also hand scraped on to V's and flat bearing.

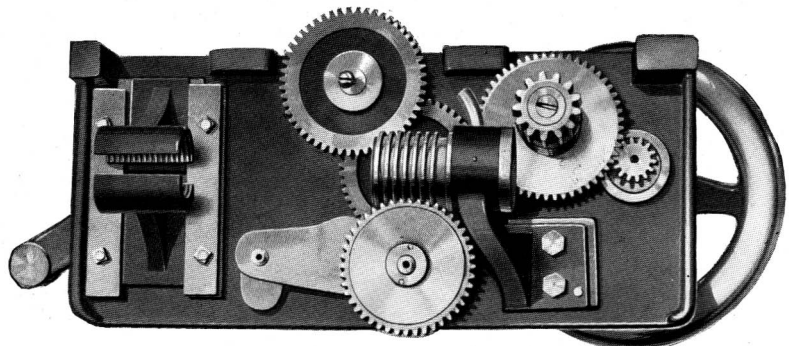
Note the web in the center of the bed extending clear to the bottom. There are several of these webs or braces cast in all the "Expert" Lathe beds, varying in number according to the length of the bed. This makes a box rib bed, strong and rigid, capable of resisting strain, and preserving the accuracy of the casting.

Inside of Apron of 13-Inch Lathe

From the illustration may be seen the manner of operation of the automatic longitudinal and power cross feeds of the 13-Inch Automatic Lathe. It shows a simple but positive arrangement of the gears, all of which are cut from the solid, and run smoothly and noiselessly.

This illustration also shows the rack pinion and the split nut. Both the rack pinion and split nut design are identically the same on all "Expert" Lathes, differing only in dimensions for the different size lathes. Thus may be seen the general construction of the rack pinion and split nut of the 9, 10, 11, 12 and 13-inch aprons.

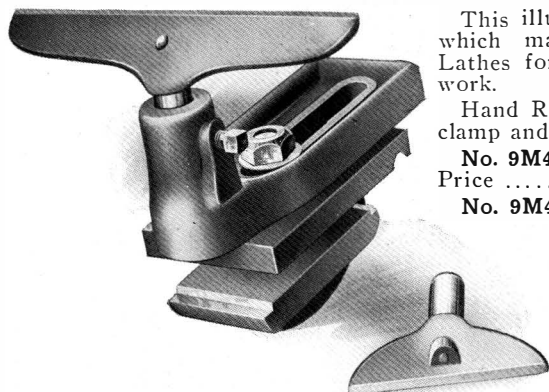
Note the strength of the split nut and the long bearing for the lead screw. This means service and power, and that all aprons on "Expert" Lathes are accurate and substantial, and it is quite necessary, as the apron is an important feature of a lathe.



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ACCESSORIES FOR "Expert" LATHES

Hand Rest for Wood Turning



This illustration shows the Hand Rest which may be attached to "Expert" Lathes for wood turning and hand tool work.

Hand Rest, complete with two T rests, clamp and base plate, also bolt and nut.

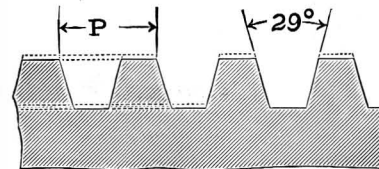
No. 9M4850 For 9 and 10-Inch Lathes.
Price\$2.25

No. 9M4851 For 11-Inch Lathe.
Price\$2.50

No. 9M4852 For 12-Inch Lathe. Price.....\$2.75

No. 9M4853 For 13-Inch Lathe. Price.....\$3.00

Acme Standard Lead Screw



The above illustration shows a section of our Acme Standard Lead Screw with which all "Expert" Lathes are equipped. This screw has rapidly replaced the old square thread style, being much stronger, as the base of the thread is much wider, resembling more the tooth of a rack. This standard has also been adopted by large machinery builders in late years for the cutting of mechanical worms, worm wheels, etc., where great strength, accuracy and durability are required. From the cross section may be seen the method of generating the Acme standard thread, showing the 29 degrees included angle, which is the same as is now generally adopted for cutting worms.

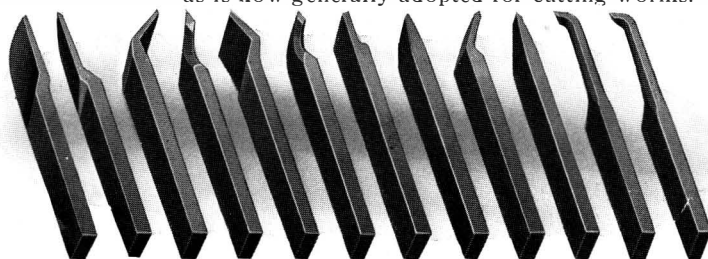
Lathe Tools

- | | |
|---------------------------------|--------------------------------|
| No. 1 Left Hand Side Tool. | No. 6 Left Hand Diamond Point. |
| No. 2 Right Hand Side Tool. | No. 7 Cutting Off Tool. |
| No. 3 Right Hand Bent Tool. | No. 8 Round Nose Tool. |
| No. 4 Right Hand Diamond Point. | No. 9 Bent Threading Tool. |
| No. 5 Left Hand Bent Tool. | No. 10 Threading Tool. |
| | No. 11 Boring Tool. |
| | No. 12 Inside Threading Tool. |

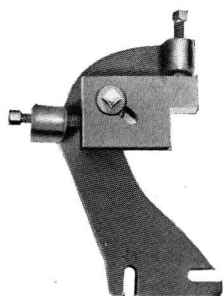
IN ORDERING BE SURE TO GIVE STYLE NUMBER OF TOOLS WANTED.

For the benefit of customers who find it difficult to supply themselves with a good equipment of tools for their lathes, we are prepared to furnish them with first class lathe tools, as shown above. These tools are made of high grade tool steel, ground, hardened and tempered, ready for use.

No. 9M4860 For 9-Inch Lathe.	Size of steel, 5-16x5/8 inch.	Price, each, any pattern as above.....	25c
No. 9M4861 For 10-Inch Lathe.	Size of steel, 3/8x3/4 inch.	Price, each, any pattern as above.....	30c
No. 9M4862 For 11-Inch Lathe.	Size of steel, 3/8x3/4 inch.	Price, each, any pattern as above.....	35c
No. 9M4863 For 12-Inch Lathe.	Size of steel, 1/2x7/8 inch.	Price, each, any pattern as above.....	45c
No. 9M4864 For 13-Inch Lathe.	Size of steel, 1/2x1 inch.	Price, each, any pattern as above.....	50c



Follower Rest



The above illustration shows our Follower Rest which can be attached to all sizes of "Expert" Lathes.

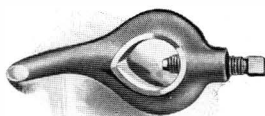
No. 9M4870 For 9 and 10-Inch Lathes.
Price\$2.50

No. 9M4871 For 11-Inch Lathe.
Price 2.75

No. 9M4872 For 12-Inch Lathe.
Price 3.00

No. 9M4873 For 13-Inch Lathe.
Price 3.25

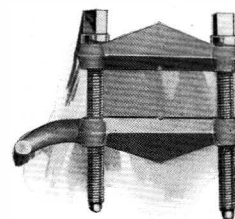
Lathe Dogs



Heavy steel dog, with steel screw, points hardened. Dog has a very heavy boss, so that if the thread wears a heavier screw can be substituted. State sizes wanted.

No. 9M4875 Steel Lathe Dogs.	Price, Each
Size Opening	
3/8 inch.....	9c
1/2 inch.....	12c
3/4 inch.....	15c
1 inch.....	18c
1 1/4 inches.....	22c
1 1/2 inches.....	26c
No. 9M4877 Price, per set of six.....	98c

Clamp Lathe Dogs



Drop forged from best tool steel.

No. 9M4880 Clamp Lathe Dogs.	Price, Each
Between Screws	
1 3/4 inches.....	\$1.50
2 1/4 inches.....	2.00
2 3/4 inches.....	2.50

Simple Rules for Screw Cutting

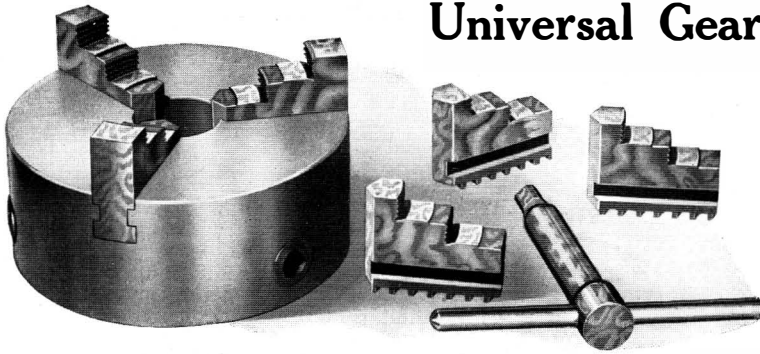
Divide the spindle gear by the number of threads in 1 inch of lead screw, and multiply that quotient by number of threads wanted to inch for screw gear.

Thus $20 \div 5 \times 12 = 48$ For compound gear the number $20 \div 5 \times 24 \div \frac{60}{30} = 48$ The $2 \div 1$ and $1 \div 2$ means the 2 to 1 gear $\frac{40}{80}$.

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Accessories for "Expert" Lathes

Universal Gear Scroll Chuck



No extra charge for fitting any chuck if ordered at same time along with one of our "Expert" Lathes.

No. 9M4885
No. 9M4886
No. 9M4887
No. 9M4888
No. 9M4889
No. 9M4890

Size
3 inches
4 inches
5 inches
6 inches
7½ inches
9 inches

Diameter
of Recess
for Flange
2⅞ inches
3⅞ inches
3¾ inches
4¾ inches
4¾ inches
5¾ inches

Diameter
of Hole
⅝ inch
1 inch
1¼ inches
1⅞ inches
2 inches
2½ inches

Price,
2 Sets
of Jaws
\$ 9.00
10.80
13.50
16.20
18.00
21.60

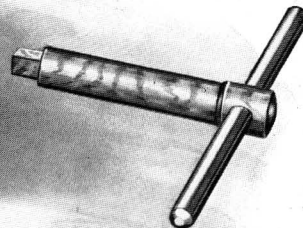
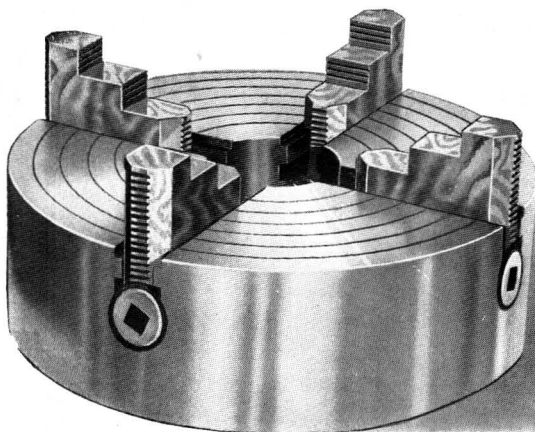
Independent Chuck, Reverse Side

The illustration to the right shows the reverse side of chuck. From the illustration may be seen the manner of attaching chuck to face plate. The chuck face plate is screwed on to the spindle nose of the lathe to which chuck is to be fitted. Plate is then turned down to the proper diameter so that it will fit snugly to the recess in chuck, then the holes are drilled in the face plate to correspond with the tapped holes in chuck. Attach face plate to the chuck by means of screws which are included in the equipment of each chuck. You will then have an accurate fit and chuck will run true.

WE CANNOT FIT PLATES TO CHUCKS FOR ANY MAKE OF
LATHE EXCEPT OUR "EXPERT" LINE.



Independent Lathe Chuck, With 4 Independent Reversible Jaws



This chuck is designed for holding lathe work which is often of an irregular shape. The screws extend fully to the outside of chuck so that the jaws have to traverse the entire length of the screw. This allows the jaws to extend to hold work that is extra large in diameter. These chucks are accurately built of the best material, the jaws are of steel, solid and easily reversible.

No extra charge for fitting any chuck if ordered at same time along with one of our "Expert" Lathes.

No. 9M4895
No. 9M4896
No. 9M4897
No. 9M4898
No. 9M4899

Size of
Chucks
4½ inches
6 inches
8 inches
9 inches
10 inches

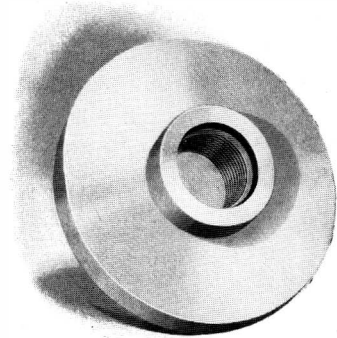
Will Hold
About
6 inches
7½ inches
9½ inches
11½ inches
12½ inches

Price
\$ 9.10
11.70
14.30
15.60
16.90

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Accessories for "Expert" Lathes

Chuck Plates



The above illustration shows a semi-finished chuck plate, used in attaching chucks to the spindle nose of "Expert" Lathes. These chuck plates are bored and threaded to fit the different size spindle noses of any size "Expert" Lathes, the flange of the chuck plate being large enough in diameter so that it may be machined to fit the size chuck required.

In ordering chuck plates specify the size lathe and the size chuck.

We cannot fit chuck plate to any but the "Expert" Lathes.

No. 9M4900 Chuck Plate. semi-finished for "Expert" Lathe.
Price, each.....\$1.00

No. 9M4902 Chuck Plate Blank. not bored or threaded.
Price, each.....\$1.00

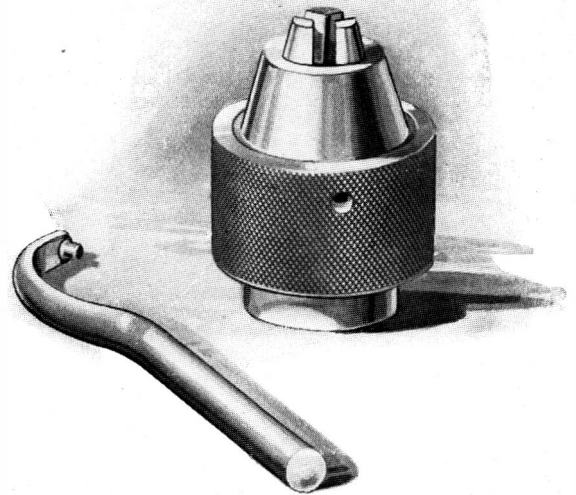
Steel Chuck Shanks



Steel Chuck Shank, used for fitting drill chucks to "Expert" Lathes. These shanks are finished with standard tapers and fit both head spindle and tail spindle of our lathes. The other end of shank is large enough so it may be turned down to fit the taper of drill chuck, as the shank is centered at both ends.

No. 9M4905 Chuck Shank. one end fitted to any size "Expert" Lathe, the other end left large to turn for fitting chuck. Price, each.....75c

Drill Chucks



This Drill Chuck is especially adapted for all light and rapid drilling. This chuck is made entirely of steel. Every chuck guaranteed as to accuracy.

No. 9M4910 Capacity, 0 to 7-32-inch. Price, each...\$4.10
No. 9M4911 Capacity, 0 to 11-32-inch. Price, each...4.30
No. 9M4912 Capacity, 0 to 17-32-inch. Price, each...6.75

Countershafts

Illustration shows design of countershafts used on all "Expert" Lathes. Two loose running friction pulleys for straight and reverse belts, operated by a rim clutch grip, a clutch that has no superior on the market. The efficiency of this clutch is excellent, changing the direction of the spindle instantly and smoothly with no shock or jar. The parts are few, so there is nothing to get out of order. Exactly the same in design for all "Expert" Lathes, differing only in size and dimensions for the different size lathes. While each lathe may be ordered with foot power or countershaft, when countershaft is ordered extra, price will be as follows:

No. 9M4915 Countershaft for 9-inch lathe. Friction pulley, 7x2 inches; speed, 250 revolutions per minute. Price.....\$12.00

No. 9M4916 Countershaft for 10-inch lathe. Friction pulley, 7x2 inches; speed, 250 revolutions per minute. Price.....\$13.00

No. 9M4917 Countershaft for 11-inch lathe. Friction pulley, 7x2 inches; speed, 225 revolutions per minute. Price.....14.00

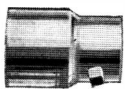
No. 9M4918 Countershaft for 12-inch lathe. Friction pulley, 8x2 1/2 inches; speed, 225 revolutions per minute. Price.....15.00

No. 9M4919 Countershaft for 13-inch lathe. Friction pulley, 8x2 1/2 inches; speed, 225 revolutions per minute. Price.....15.00

RULE FOR ASCERTAINING THE PROPER SIZE OF PULLEY FOR MAIN SHAFT.

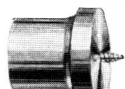
Multiply the diameter of the pulley on the countershaft by the number of revolutions the countershaft should run; divide this by the number of revolutions of the main shaft; the result will be the diameter of the driving pulley to be placed on the main shaft.

Centers, Screw Chucks and Drill Pads. Fitted to "Expert" Lathes



Drill Chuck.

No. 9M4925
For 9 and 10-in. lathe..\$1.00
For 11-in. lathe.....1.25
For 12 and 13-in. lathe. 1.50



Screw Chuck.

No. 9M4929
For 9 and 10-in. lathe..\$1.50
For 11-in. lathe.....1.75
For 12 and 13-in. lathe. 2.00



Blank Chuck.

No. 9M4933
For 9 and 10-in. lathe..\$1.00
For 11-in. lathe.....1.00
For 12 and 13-in. lathe. 1.00



Screw Center.

No. 9M4926
For 9 and 10-in. lathe..\$1.50
For 11-in. lathe.....1.50
For 12 and 13-in. lathe. 1.75



Drill Pad.

No. 9M4930
For 9 and 10-in. lathe..\$1.25
For 11-in. lathe.....1.50
For 12 and 13-in. lathe. 1.75



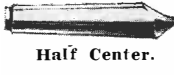
Crotch Center.

No. 9M4934
For 9 and 10-in. lathe..\$1.50
For 11-in. lathe.....1.75
For 12 and 13-in. lathe. 2.00



Spur Center.

No. 9M4927
For 9 and 10-in. lathe..\$1.50
For 11-in. lathe.....1.50
For 12 and 13-in. lathe. 1.50



Half Center.

No. 9M4931
For 9 and 10-in. lathe..\$1.25
For 11-in. lathe.....1.50
For 12 and 13-in. lathe. 1.75



Square Center.

No. 9M4935
For 9 and 10-in. lathe..\$1.25
For 11-in. lathe.....1.50
For 12 and 13-in. lathe. 1.75



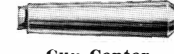
60-Degree Center.

No. 9M4928
For 9 and 10-in. lathe..\$1.25
For 11-in. lathe.....1.25
For 12 and 13-in. lathe. 1.25



Concave Center.

No. 9M4932
For 9 and 10-in. lathe..\$1.25
For 11-in. lathe.....1.50
For 12 and 13-in. lathe. 1.75



Cup Center.

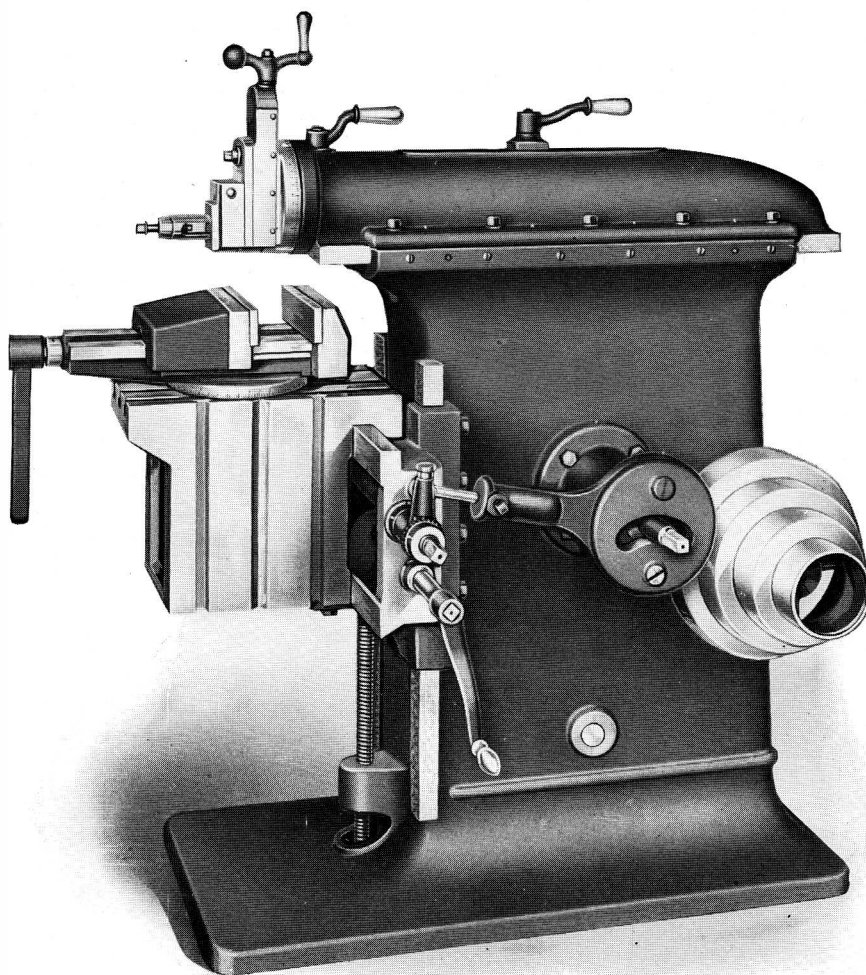
No. 9M4936
For 9 and 10-in. lathe..\$1.25
For 11-in. lathe.....1.50
For 12 and 13-in. lathe. 1.50

ALL GOODS ON THIS PAGE SHIPPED DIRECT FROM FACTORY NEAR CHICAGO, ILL.

OUR "COMMERCIAL" 17-INCH CRANK SHAPER

An Improved Design, A High Class Machine, A Shaper That Would Cost
You \$300.00 or More Elsewhere

OUR PRICE, **\$248⁰⁰**



No. 9M4732 Price, \$248.00

A POWERFUL, ACCURATE AND DURABLE MACHINE

This shaper is amply heavy and strong enough for any work up to its capacity and is one of the most useful and necessary machines in any well equipped metal working shop. No man operating a machine shop, factory or metal working plant of any kind who desires to get out the greatest amount of work at the lowest possible shop cost should be without one of these "Commercial" shapers. They do work equal in quantity and accuracy to machines sold by others at \$300.00 to \$500.00 each. They are strong and well made, require but little power, are quickly and easily adjusted for different kinds and sizes of work, and soon pay for themselves in time and labor saved. If you are in need of a shaper, you cannot afford to buy elsewhere, when you can get a machine of the high quality of our "Commercial" at such a great saving in price.

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SEE NEXT PAGE FOR FULL DETAILED DESCRIPTION OF THIS 17-INCH SHAPER.

OUR "COMMERCIAL" 17-INCH CRANK SHAPER

Detailed Description of Our "Commercial" 17-Inch Crank Shaper

Our "Commercial" Shaper has heavy cast iron frame and base, made extra thick and strong where the strain is greatest. Shafts, screws and other working parts are of steel, all of ample size to do the work required and tempered wherever necessary to prevent wearing. Bearings in this machine are of the most approved type, with wide bearing surfaces, greatly adding to the life of the working parts. The extra quality of the materials used throughout and the high class workmanship put into the manufacture of this shaper enable us to sell it under our guarantee of "Complete satisfaction or your money back, including transportation charges," a guarantee that none of the exclusive machinery houses will give with even their \$300.00 to \$500.00 shapers.

The Column of this shaper is designed especially to resist heavy strains, which the machine is capable of taking, and is of construction to insure rigidity under heavy cuts.

The Slides are extended on both ends, so as to give as great a bearing as possible to the ram at the ends of the extreme stroke.

The Ram is well gibbed into the column, the gib being fastened by five cap bolts and adjusting screws. The ram is of new design, with large wearing surfaces, is thoroughly ribbed and braced, so that it is extremely stiff.

Tool Head is of large diameter and the tool block has a vertical movement of 6 inches. The graduations on the head are of large proportions, clear and distinct, so as to be easily read by the operator. The swiveling head is fastened to the ram by a clamping lever.

Cross Rail is firmly gibbed to the column by five clamping gib bolts. This rail has extra wide bearing surface, to insure long life to the working parts.

Box Table is of the improved form and has T slots milled from the solid on one side and top.

The Pendulum is larger than usually put in a machine of this size and is made heavy, so as to be in proportion to the rest of the machine.

The Vise has large graduated base and can be set at any angle for the work required.

The Down Feed Screw in the head of this machine, as well as the adjusting screw for lengthening and shortening the stroke, is cut on special automatic machinery designed for this special purpose.

DIMENSIONS AND PRICES OF OUR "COMMERCIAL" 17-INCH CRANK SHAPER.

RAM is 35 inches in length, has a bearing in the column 27 inches long by 8½ inches wide, is heavily ribbed and of ample proportions.

TOOL HEAD has a vertical movement of 6 inches, is 6¾ inches in diameter and has a maximum distance from the table of 18 inches.

TABLE has a working surface of 10x16 inches on the top, 12x10¾ inches on the side.

VISE has jaws 10 inches wide, 2 inches deep and opens out 10 inches.

WEIGHT, about 1,760 pounds.

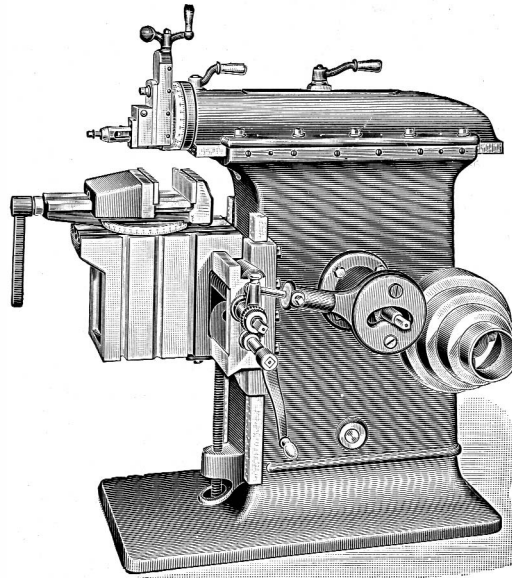
No. 9M4732 Our "Commercial" 17-Inch Crank Shaper, complete as illustrated and described.

Price, without belting.....

\$248.00

The Bull Gear is of large diameter, wide face and coarse pitch, and cut from the solid. The pinion running into the bull gear is cut from the solid, as are also the bevel pinions for adjusting the stroke in the ram.

The Cones are of large diameter and face, larger than usually put in a machine of this size.



No. 9M4732 Price, \$248.00

The Countershaft. Machine is provided with an improved countershaft which should make about 165 revolutions per minute. Pulleys on countershaft are 13 inches in diameter by 3 inches across the face. This shaper is also furnished with the necessary wrenches for adjusting, etc., but our price does not include belting.

This Shaper is made so that parts are interchangeable, all boring, drilling, tapping and surfacing work being done with the most improved jigs and fixtures, to insure accuracy and durability. Should any part of machine break or wear out, another part could be had which would fit as well as the old one.

Power. This "Commercial" Shaper, because of its improved design, rigidity and accuracy of adjustment, runs very light and requires but little power. We usually recommend from 1 to 2-horse power; however, on light work it often requires even less.

These "Commercial" Shapers are shipped direct from factory in Chicago, but we cannot include with them goods shipped from our Chicago store. We can, however, ship together any metal working machinery which we state in this catalog is shipped direct from factory in Chicago. These shapers are securely bolted to skids with all small parts boxed, thereby securing a very low rate of freight.

RAIL has a bearing on the column of 12 inches, with a vertical feed of 15 inches.

CONE diameters are from 5 inches to 12 inches for 2½-inch belt.

MACHINE has a gear ratio of 6 to 1.

PENDULUM is arranged so that a shaft 2½ inches in diameter can be put through for key seating.

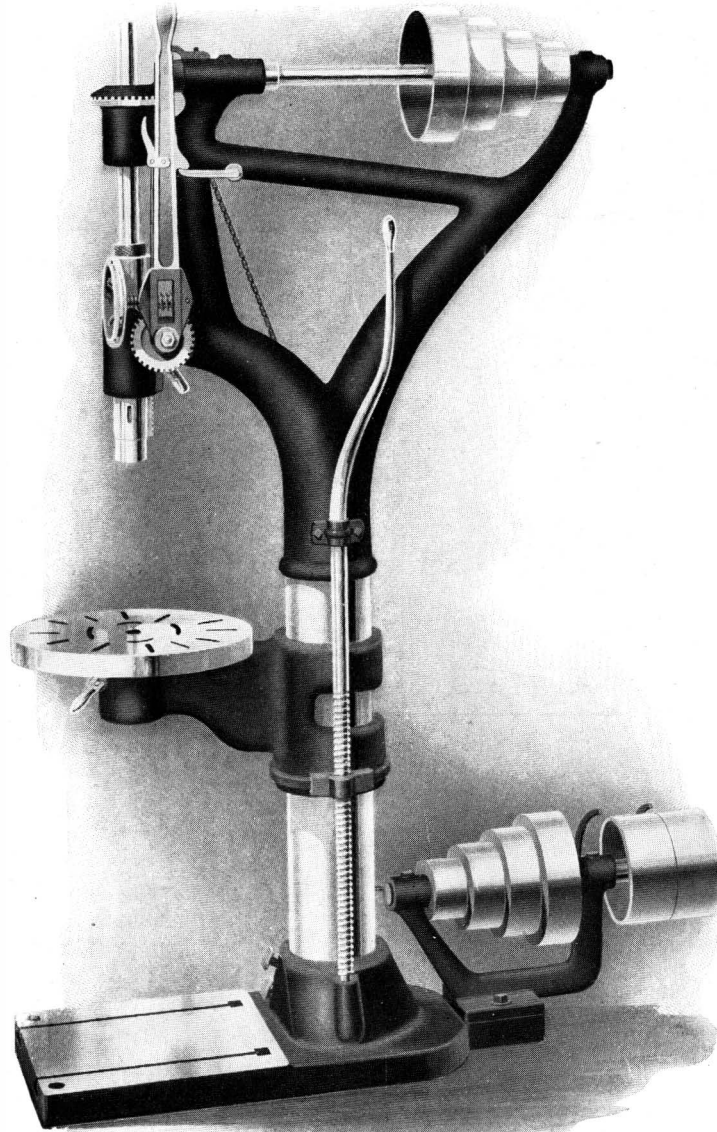
THIS "COMMERCIAL" SHAPER will make from 11 to 66 strokes per minute, and feeds from .010 to .120 per stroke.

COUNTERSHAFT pulleys are 13 inches in diameter by 3-inch face and the speed should be 165 revolutions.

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OUR "COMMERCIAL" 20-INCH UPRIGHT DRILL

ESPECIALLY ADAPTED FOR MACHINE SHOP WORK, FACTORIES, GARAGES, ETC. CANNOT BE EQUALED ANYWHERE AT OUR PRICE



No. 9M4736

A DURABLE,
ACCURATE
AND POWERFUL
MACHINE

WELL WORTH \$100.00
OUR
SPECIAL
PRICE, **\$67.50**

NEW DESIGN.
BEST MATERIALS
USED IN ITS
CONSTRUCTION

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CHICAGO, ILL.

SEE NEXT PAGE FOR FULL DETAILED DESCRIPTION OF THIS 20-INCH UPRIGHT DRILL

OUR "COMMERCIAL" 20-INCH UPRIGHT DRILL

A DURABLE, ACCURATE MACHINE OF THE HIGHEST TYPE AT A MODERATE PRICE.

A New Design, a Powerful Drill. Made according to our own specifications for our "Commercial" line of machine tools. Guaranteed equal in quality of work turned out, accuracy and durability to any drill on the market, not even excepting those that regular machinery agents and dealers sell for \$100.00 or more. We have spared neither time nor expense to produce a perfect tool, and throughout have used only the best materials possible to procure. We sell no other machine that we recommend with more satisfaction than we do this "Commercial" 20-Inch Upright Drill, and feel sure that anyone using it would not exchange it for a

Adjustment. Drill table is raised or lowered by a screw placed parallel with the column, the handle of which is always in easy reach of operator. With this arrangement the operator, standing upright and with but little effort, can raise or lower the drill table with one hand, a feature that any experienced machine tool operator will appreciate.

Spindle is made of best steel, is fitted with a No. 3 Morse Taper and is counterbalanced by a weight in the center of the column. Drill spindle has long lever for feeding down the drill, also latest improved wheel feed. Spindle and spindle sleeve are ground on a Landis Automatic Grinder to insure absolute accuracy.

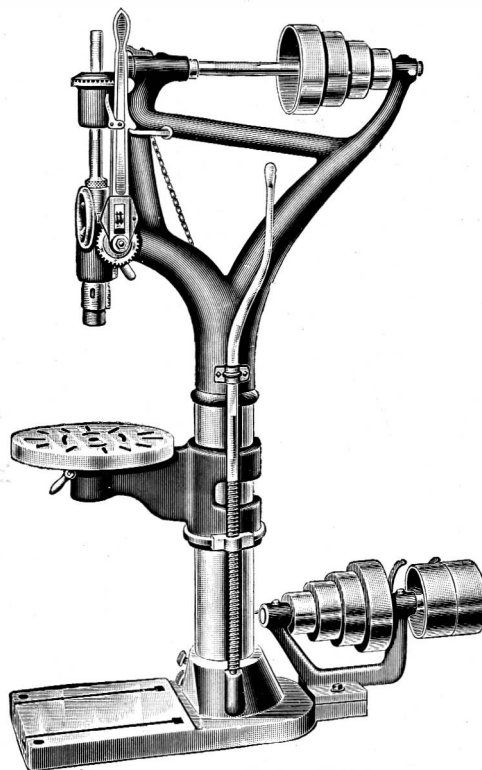
Gears. Rack and gears are accurately cut from the solid on automatic machines with special service cutters. All gears fit closely, have no lost motion and are as nearly noiseless as metal gearing can be made.

Bearings. All bearings are long and well fitted, thus insuring the greatest amount of wear. You need have no fear of bearings heating even under the heaviest work drill is capable of doing, provided you keep them properly oiled.

Drill Table. Improved pattern, slotted so that work can be bolted down. Turns in the arm that holds it and can be locked instantly. Arm also turns on drill column and can be swung around out of the way to accommodate large work. Both drill table and arm that supports it are locked by levers attached, requiring no wrench.

similar machine even though it cost twice the price we ask you to pay for our "Commercial" drill.

This "Commercial" 20 - Inch Upright Drill is especially suitable for machine shop work, factories, garages, etc., and is also an ideal tool for the large size blacksmith and general repair shop. It is large and strong enough to take care of the heaviest work the average shop is called on to handle, and accurate enough to do the finest drilling a machinist ever desires to do. It is a time and labor saver, has both wheel and lever feed and the latest improved methods of raising and lowering column and other operating devices.



No. 9M4736 Price, \$67.50

Column. Accurately machined so that table holder will slide smoothly. Made hollow to give greatest rigidity without unnecessary weight.

The Base is made heavy and deep and well ribbed so as to avoid all spring. Requires only 44½x15 inches floor space and also supports the countershaft.

The Countershaft. Mounted on same base with drill, requiring but little extra floor space and no extra fixtures. Cone pulleys have four steps, giving a great range of motion. Belt shifter is conveniently located and is operated by the foot, thus allowing free use of both hands for other purposes.

Power. Like all our "Commercial" Machine Tools, this drill is constructed to get the greatest amount of work from the least power possible. For heavy fast work we usually recommend from 1 to 2-horse power; however, on lighter work it requires considerably less.

This "Commercial" Drill is made so its parts are interchangeable, all boring, drilling, tapping and surfacing being done with the most improved drills, jigs and fixtures. We can furnish repairs or parts, and guarantee them to fit at any time you may need them.

We Ship these "Commercial" drills direct from factory in Chicago. We securely crate them and box all small loose parts, thereby securing a very low rate of freight.

DIMENSIONS AND PRICE OF OUR "COMMERCIAL" 20-INCH UPRIGHT DRILL.

Diameter of column.....	5½ inches	Diameter of bevel pinion.....	3⅞ inches
Cone pulleys, carry 2¼-inch belt, 4 steps; diameter of largest step, 8⅞ inches; diameter of smallest step.....	4 inches	Spindle diameter, 1⅞ inches; vertical travel.....	10 inches
Countershaft, speed.....	250 r.p.m.	Greatest distance, spindle to table.....	26½ inches
Tight and loose pulleys, diameter 8 inches; belt..	2½ inches	Greatest distance, spindle to base.....	41 inches
Dimensions, height over all 68 inches; floor space required	44½x15 inches	Hole in spindle conforms to No. 3 Morse Taper..	
Diameter of crown gear.....	5 3-16 inches	Will drill to center of.....	20 inches
		Table vertical travel, 16 inches; diameter.....	16 inches
		Weight, net, about 525 pounds; crated, about.....	550 pounds

No. 9M4736

OUR "COMMERCIAL" 20-INCH UPRIGHT DRILL, COMPLETE AS ILLUSTRATED AND DESCRIBED. PRICE, WITHOUT BELTING.....

\$67.50

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OUR "COMMERCIAL" POWER HACK SAW

A FIRST QUALITY MACHINE. A NECESSITY IN EVERY WELL EQUIPPED METAL WORKING SHOP.

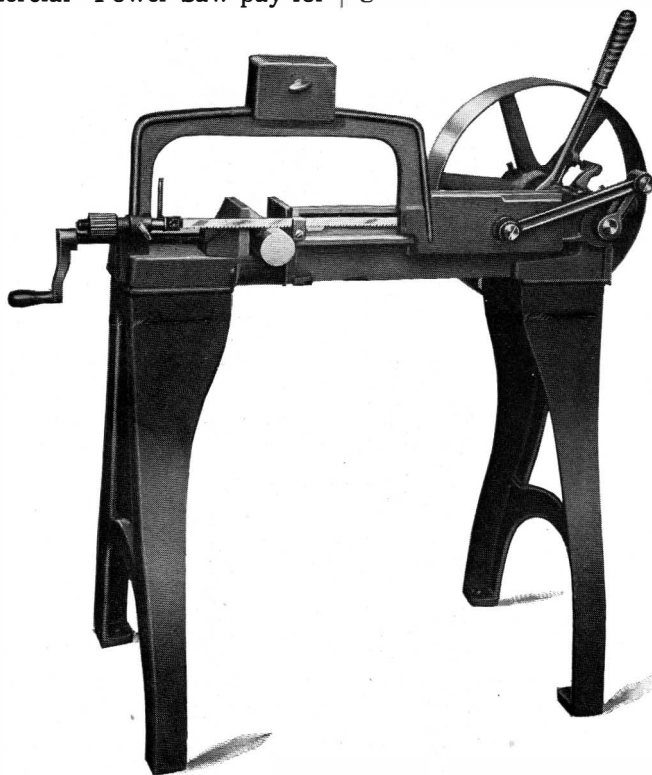
Machinists, Factory Owners, Blacksmiths, Repair Men, you who have been using old style hand hack saws, you can make our "Commercial" Power Saw pay for

itself in a very short time. If you want to get work through your shop as quickly as possible, at the least expense possible, and done in the very best manner possible, you cannot afford to continue to use old time hand hack saws, especially when you can get our "Commercial," the best power saw of its size on the market, at a price as low as we quote.

Don't Think because our price is so low this saw is not first class. Saws of equal capacity and not as well made are sold all over the country at \$25.00 and upward. Our price saves you at least one-third and the saw we sell you will do as good work as any saw of its capacity made.

Our "Commercial" Saw has a capacity sufficient to cut bars up to 4 inches square and is provided with gravity feed. It will cut all kinds of materials, flats, squares and rounds, the wide range of feed enabling even hard steel to be cut off square. This machine is especially suitable for cutting off shafting, light architectural iron, pipe, forgings, etc., up to its capacity.

The Gravity Feed is adjusted by altering the position of the weight on the arm. The saw guide is of hardened steel and holds the blade close to the work. All rods and shafts are of steel and the machine well and substantially built.



No. 9M4744

OUR PRICE	\$16.50	USUAL PRICE	\$25.00
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We Ship these "Commercial" Saws direct from factory in Chicago. We securely bolt them to skids and box all loose parts, thereby securing a very low rate of freight.

An Automatic Stop is provided to instantly stop the saw when work is cut through. The machine is started by a clutch on the driving shaft, thus rendering a countershaft unnecessary.

This "Commercial" Saw requires but little power, it having been designed to get the full benefit of every ounce of power. One-horse power is sufficient to run it to its full capacity, and it requires even less on ordinary work. This economy of power should be greatly appreciated when so many similar machines require from 25 to 75 per cent more power to operate than our "Commercial."

DIMENSIONS AND PRICE OF OUR "COMMERCIAL" HACK SAWS.

Capacity, takes work up to 4x4 inches.

Stroke of Saw Blade, 6 inches.

Length of Saw Blade, 12 inches.

Speed of Pulley, 60 revolutions per minute.

Weight, about 138 pounds.

Price includes half dozen blades.

No. 9M4744 Our "Commercial" Power Hack Saw, complete as above, but without belting. Price.....\$16.50

No. 9M4746 Power Hack Saw Blades, for use with above machine. Length, 12 inches, 14 teeth to inch, $\frac{3}{4}$ inch wide.

Price, per dozen.....76c

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POWER TRIP HAMMER

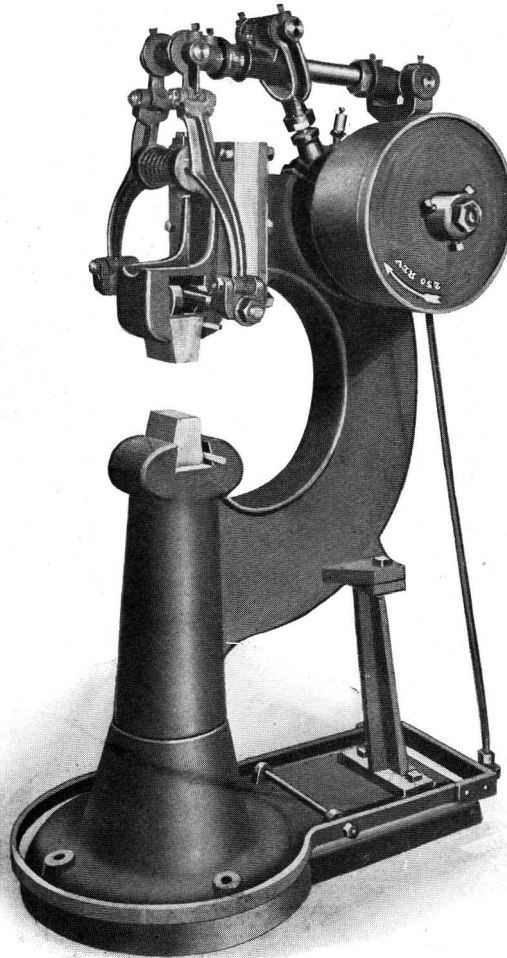
POWERFUL, STRONG AND DURABLE. EQUAL IN CAPACITY TO ANY MACHINE ON THE MARKET OF DOUBLE ITS WEIGHT. WE WELCOME COMPARISON WITH ANY \$90.00 POWER HAMMER

This Power Hammer is especially suitable for machine shops, factories, blacksmith and repair shops, or anywhere a high class trip hammer is needed that is strong and heavily proportioned, that requires but little power to operate and that gives the very best results. Combines the well known principles of helve and direct acting hammers, doing away with the objections of each and securing advantages of both. Its simplicity in construction adds to its strength and durability. For practical construction it cannot be surpassed. It is the best hammer on the market for the general shop, will save time and labor, cut down your shop cost and enable you to do work that you now have to turn away. You cannot afford to get along without a power hammer, and at the low price we ask, you cannot afford to buy any other.

This Power Hammer is strictly high grade, long wearing and easy running; we cannot recommend it too highly. It is designed along lines quite different from those commonly employed. It is a symmetrical machine, rounded to give strength and save weight, and every care is used in its manufacture. A perfect system of standard jigs and templates insures all parts being interchangeable and enables its production at a reasonable cost. Requires but little floor space. Working parts are low and readily accessible.

The Material Used in the construction of this Power Hammer is the best possible to procure. It is made of the least number of parts to be found in any power hammer, thereby reducing any possible chance of its getting out of order. The main frame casting is in one piece with the anvil. The entire casting is strong and heavily proportioned, just the right amount of metal in the proper place to withstand the jar and work of the hammer. The hammer head is machined and gibbed and securely fastened to main casting, thus making provision for taking up wear. All shafts and pins subject to wear are made of hammered steel and the eccentric strap is made of best bronze. The spring mechanism of this machine will commend itself at once to the mechanic as a more practical way of securing the elastic cushion stroke so essential in a power hammer. There is only one spring used. Friction clutch is of new design, the best clutch for the purpose yet produced. It controls the hammer perfectly by foot pressure, leaving the hands free for other purposes. Machine requires but little power when its capacity for work is considered, 1 to 2-horse power being sufficient to run it on even the heaviest work, while much less power is required on light work.

This Hammer is shipped direct from factory in Southern Iowa. It is securely crated, all small parts being boxed, thus securing a very low freight rate. Our price includes one set of dies with rounded face, which answers for all ordinary work.



No. 9M4740

**REGULAR
\$90.00
VALUE**

**OUR PRICE,
\$60.00**

DIMENSIONS AND PRICE OF THIS POWER TRIP HAMMER.

Stroke of Head, adjustable from 3½ to 9 inches.

Size of Pulley, 11 inches in diameter by 4-inch face.

Speed of Pulley, 250 revolutions per minute.

Height of Machine Over All, 55 inches.

Height to Top of Anvil Block, 31 inches.

Floor Space, 18x30 inches.

Weight, about 700 pounds.

No. 9M4740 This Power Trip Hammer, complete as above, but without belting. Price.....**\$60.00**

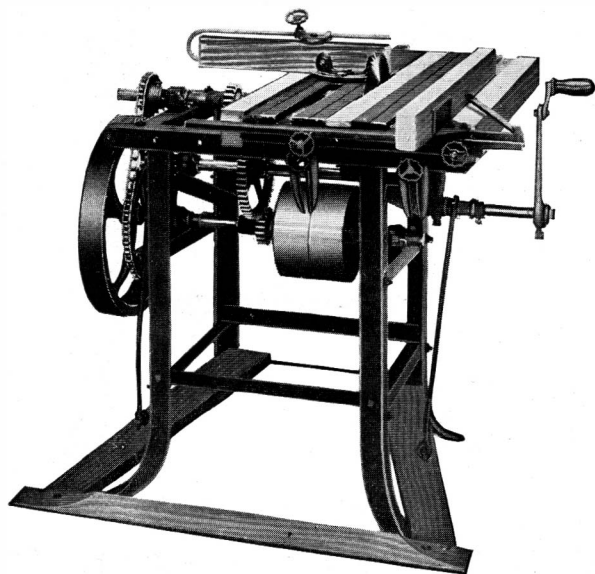
POWER TRIP HAMMER DESCRIBED ABOVE SHIPPED ONLY FROM FACTORY IN SOUTHERN IOWA

BALL BEARING RIP AND CROSS CUT SAW MACHINES

FOR FOOT, HAND OR LIGHT BELT POWER

Strong, substantial machines, built for practical everyday shop use. Hundreds of them are now in use in different lines of work, and all of them are giving satisfaction. No matter what business you are in, whether it is large or small, whether you have power in your shop or not, if you ever need a light rip or cross cut saw you cannot afford to do without one of these machines. They save the labor of several men in some shops and will soon pay for themselves in any shop; also excellent machines for taking from job to job, being very light as compared with cast iron, and on account of their angle steel construction are practically unbreakable. Note the useful attachments shown on pages 39 to 41 which can be used in connection with these machines.

DETAILED DESCRIPTION



No. 9M4204 Price, \$38.50

Machine set for cross cutting, drive wheel on countershaft.

speed, and is best for heavy ripping with foot and hand power. With link belt in gear and cog wheel on saw mandrel thrown out, saw turns nine times to one of crank, which is the fast speed and is best for cross cutting. On slow speed, drive wheel should be on end of saw mandrel so as to force the saw through under heavy feed. On fast speed, drive wheel should be on end of countershaft. Change from one speed to the other is easily and quickly made and either speed works with foot or hand power or both. Drive wheel is 18 inches in diameter, weighs 40 pounds and is 20 inches from saw. Shafting is 1-inch cold rolled steel. Mandrel takes saws with $\frac{7}{8}$ -inch hole and up to 10 inches in diameter. Cogs are best gray iron.

Sprocket Wheels and Link Belt, in connection with the ball bearings, transmit a high speed to the saw mandrel without slipping and with half the power that other machines require. This saving of power is of great importance where machines are run by foot or hand power, by a small gasoline engine or by electric power, where the cost is in proportion to the amount of power used.

Saw Table, made of heavy angle steel with channel steel cross pieces. Top surface is carefully finished by grinding on special machine. Table is hinged in back to raise and lower, giving an adjustment in depth of cut of 3 inches. Has piece of hardwood $2\frac{1}{2}$ inches wide fitted alongside the saw, which may be removed if it is necessary to use wide cutter heads on the saw mandrel. Length of saw table, 3 feet; width, $18\frac{1}{2}$ inches.

Saw Guides. Rip guide is adjustable for sawing any width up to 22 inches. It is securely held in line with saw by two hand wheels in front of table, is easily changed to either side of saw and may also be used as a stop when doing cross cut work. Cross cut guide has channel steel slide which runs in grooves on either side of saw. It has an adjustable stop for cutting material to lengths and is also adjustable to cut any angle up to 45 degrees.

Pulleys and Belt Shifter. Has two pulleys, one tight and one loose. Pulleys are 8 inches in diameter by 3 inches across the face. Belt shifter is strong and substantial, works easily and does not injure the belt. When machine is worked by belt power, cog wheels should be thrown out of gear and power transmitted only by link belt. Pulley should make 400 revolutions per minute, driving saw 1,200 revolutions per minute.

Power. From 1 to 2-horse power is required to operate machine, according to material being sawed.

No. 9M4204 Ball Bearing Rip and Cross Cut Saw Machine, as illustrated and described, equipped for foot, hand and belt power. Complete with one 10-inch rip and one 8-inch cross cut saw. Shipping weight, about 280 pounds. **\$38.50** Shipped from factory in Cincinnati, Ohio. Price.....

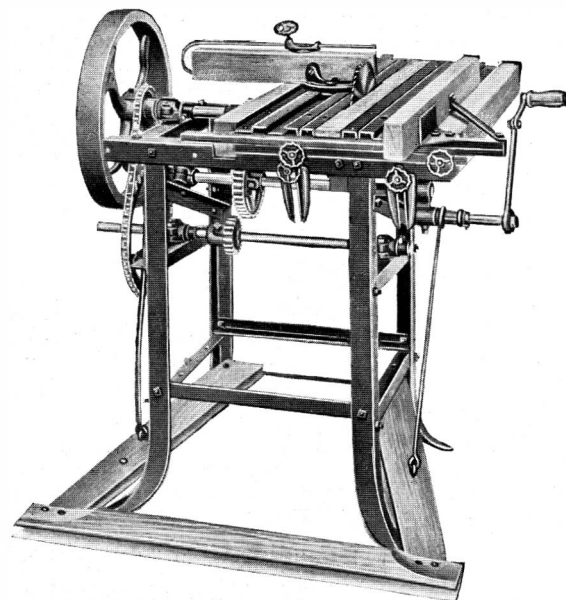
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IN
CINCINNATI, OHIO**

Ball Bearings save almost half the power, insure light running and make one man's work on this machine equal to two men's work on any other. Each machine has five ball bearing journals, 2 inches wide, and each journal has two complete circles of balls. These wide double ball bearing journals steady the shafts and prevent vibration. The balls used are machined from best die steel and run on hardened steel races. These ball bearing journals never heat, require but little oil and stand a very high speed under heavy pressure.

Frame. Our standard frame, very rigid and stiff. Made of heavy angle steel, strongly braced; has overlapping joints and is put together entirely with bolts, which may be tightened as required to take up wear. Height of frame, 2 feet $9\frac{1}{2}$ inches; covers floor space, 3 feet 3 inches by 3 feet 6 inches.

Crank and Treadle are connected so that operator may use either or both at the same time. Crank is so adjusted as to come up as the treadle goes down, so the operator can push down with the foot as he pulls up with the crank, or operator may rest by changing from one method to the other. Foot treadles are extra long, and two or even three men can apply power for extra heavy work. Crank is adjustable to different lengths as may best suit the operator and the work being done.

Gearing. Machine has two speeds, to suit different kinds of work. With cog wheel on saw mandrel in gear with crank shaft and link belt thrown out, saw turns three times to one of crank, which is the slow speed, and is best for heavy ripping with foot and hand power. With link belt in gear and cog wheel on saw mandrel thrown out, saw turns nine times to one of crank, which is the fast speed and is best for cross cutting. On slow speed, drive wheel should be on end of saw mandrel so as to force the saw through under heavy feed. On fast speed, drive wheel should be on end of countershaft. Change from one speed to the other is easily and quickly made and either speed works with foot or hand power or both. Drive wheel is 18 inches in diameter, weighs 40 pounds and is 20 inches from saw. Shafting is 1-inch cold rolled steel. Mandrel takes saws with $\frac{7}{8}$ -inch hole and up to 10 inches in diameter. Cogs are best gray iron.



No. 9M4200 Price, \$35.00

Machine set for ripping, drive wheel on saw mandrel.

No. 9M4200 Ball Bearing Rip and Cross Cut Saw Machine, as illustrated, equipped for foot and hand power only. Same as No. 9M4204, except without pulleys and belt shifter. Complete with one 10-inch rip and one 8-inch cross cut saw. Shipping weight, about 270 pounds. Shipped from factory in Cincinnati, Ohio. Price..... **\$35.00**

RIP AND CROSS CUT SAW MACHINE

FOR LIGHT BELT POWER.

Adapted to Be Belted Direct to saw mandrel or may be run with a countershaft. Our countershaft No. 9M4316 on page 40 is especially suitable for this machine. This is a good machine for contractors and builders; strong and rigid, but not too heavy to move from one job to another.

Frame and Saw Table. Made of heavy angle and channel steel, very rigid and stiff, strongly braced and put together with bolts so that machine can always be kept tight.

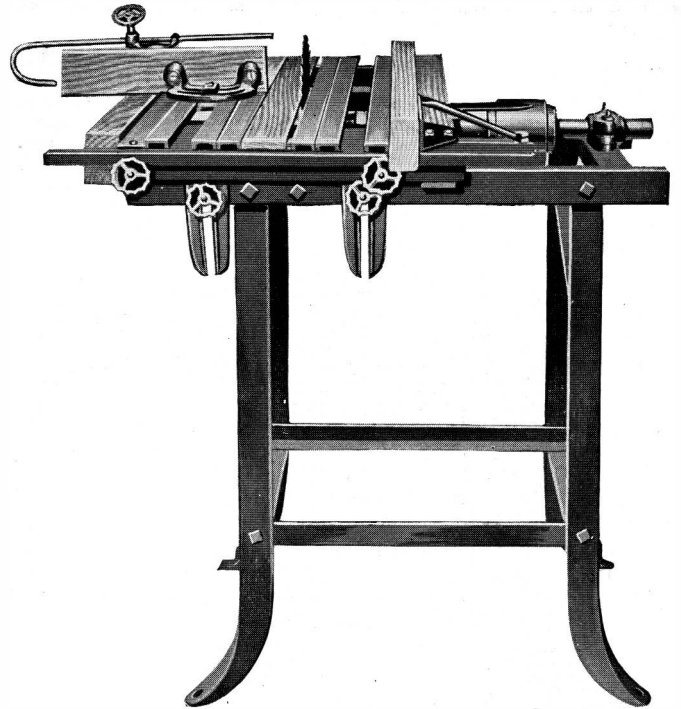
Saw Guides. Machine is furnished with rip and cross cut saw guides. Rip guide is adjustable for sawing any width up to 22 inches. It is securely held in line, quickly adjusted on either side of saw and may also be used as a stop when doing cross cut work. Cross cut guide slides in grooves on either side of saw. It has an adjustable stop for cutting material to lengths and is adjustable to saw any angle up to 45 degrees.

Mandrel and Pulley. Mandrel is 1-inch cold rolled steel. Pulley is 3 inches in diameter by 3 inches across face. Mandrel is intended to take saws with $\frac{7}{8}$ -inch hole and 10 inches in diameter, which will cut 3 inches deep, though a saw as large as 14 inches in diameter may be used on special work. Saw mandrel should be speeded about 1,500 revolutions per minute. Bearings are wide and accurate, babbitted with best anti-friction metal, require but little oil, and if kept properly oiled will not overheat.

Dimensions: Height of table, 2 feet 9½ inches. Covers floor space 3 feet 3 inches by 3 feet 6 inches. Size of saw table, 3 feet long by 18½ inches wide. Shipping weight, about 165 pounds.

Power required to operate machine, 1 to 2-horse, according to material to be sawed.

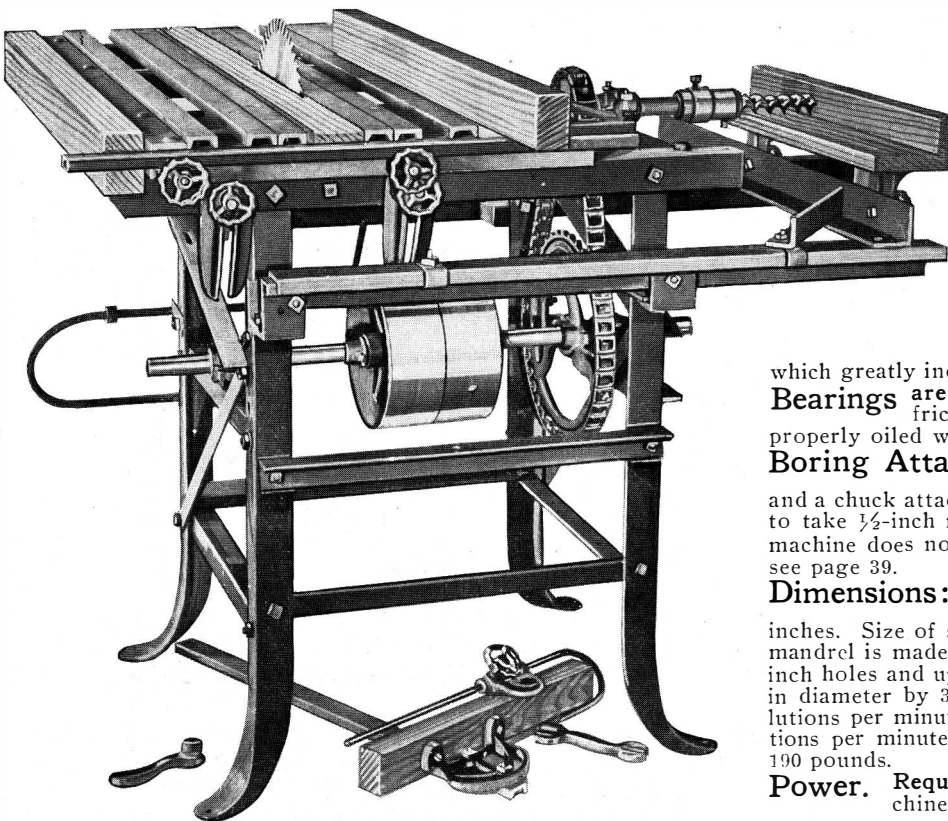
No. 9M4284 Light Belt Power Rip and Cross Cut Saw Machine, as illustrated and described. Complete with one 10-inch rip and one 8-inch cross cut saw. Shipped from factory in Cincinnati, Ohio. Price..... **\$20.50**



No. 9M4284 Price, \$20.50

RIP AND CROSS CUT SAW MACHINE

WITH BORING ATTACHMENT, FOR LIGHT BELT POWER.



No. 9M4286 Price, \$33.25

Equipped With Tight and Loose Pulleys, belt shifter, sprocket wheels and link belt. The tight and loose pulleys take the place of a countershaft, save floor space and belting, and the link belt transmits a high speed to the saw mandrel with about half the power that other machines require.

Frame and Saw Table. Made of heavy angle and channel steel, with overlapping joints. Put together with bolts which can be kept tight. The strongest and most rigid frame possible to build within even 100 pounds of the weight of this machine.

Saw Guides. Price includes adjustable rip and cross cut saw guides, which greatly increase the usefulness of the machine.

Bearings are wide and accurate, babbitted with best anti-friction metal, require but little oil, and if kept properly oiled will not overheat.

Boring Attachment consists of an adjustable sliding support to hold the material being bored and a chuck attached to the end of saw mandrel. Chuck is bored to take $\frac{1}{2}$ -inch round shank bits and drills. Our price of this machine does not include boring bits. For price of boring bits see page 39.

Dimensions: Height of saw table, 2 feet 9½ inches. Covers floor space 3 feet 3 inches by 3 feet 6 inches. Size of saw table, 3 feet long by 18½ inches wide. Saw mandrel is made of 1-inch cold rolled steel, takes saws with $\frac{7}{8}$ -inch holes and up to 10 inches in diameter. Pulleys are 8 inches in diameter by 3 inches across face and should make 500 revolutions per minute, which would drive saw mandrel 1,500 revolutions per minute. Shipping weight of machine complete, about 190 pounds.

Power. Requires from 1 to 2-horse power to operate machine, according to the material being sawed.

No. 9M4286 Light Belt Power Rip and Cross Cut Saw Machine, with tight and loose pulleys and belt shifter, as illustrated and described, including one 10-inch rip and one 8-inch cross cut saw, but without boring bits. Shipped direct from factory in Cincinnati, Ohio. Price..... **\$33.25**

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HEAVY SINGLE TABLE POWER RIP AND CROSS CUT SAW MACHINE

With Long Wood Base and Countershaft

This Machine Was Specially Designed for heavy ripping and cross cutting, though it gives equally as good results on light and medium work, which make this an ideal machine for the carpenter, contractor, wagon maker, box manufacturer or anyone who runs a general wood working shop. It also makes a very convenient portable machine, as it is light, compared with cast iron, and, being made of angle steel, is practically unbreakable. By using heavy sills a steam or gasoline engine can be mounted in rear of saw machine and belted direct to mandrel, no countershaft being necessary.

The Frame of this machine is made of extra heavy angle steel, much heavier than the steel used in our hand and foot power machines. This angle steel is strongly braced, has overlapping joints and is securely bolted together, which gives the machine perfect rigidity and strength enough to stand all the strain that can be put upon it by the drive belt. At the bottom the angle frame is bolted to heavy 2x10-inch dressed pine timbers, which greatly increase the steadiness of the machine, giving it more of a foundation and distributing the strain over more floor space, also making it easy to fasten machine down to the floor with the special floor clips provided for that purpose. The pine timbers on this machine are 4 feet 2 inches long and the machine rests on the floor in a space 24 inches wide.

The Saw Table is made of heavy angle and channel steel, top surface smoothly finished by grinding on a special machine. Table measures 2 feet 10 inches in height from the floor and is 22¼ inches wide by 3 feet in length. It is hinged at the back and can be adjusted by the wheel hand screws in front to raise or lower to regulate the depth of cut. The saw table is furnished with hardwood strip alongside the saw, which may be removed so that our 3-inch cutter head may be used on saw mandrel. The heavy angle steel on each side of saw table makes it possible to build on to and extend table to any width desired for handling long work. The opening in the saw table will permit the use of saws as large as 14 inches, which will cut 5 inches deep, but we furnish 12-inch rip saw and 10-inch cross cut saw with the machine, as we find these sizes best adapted for general use.

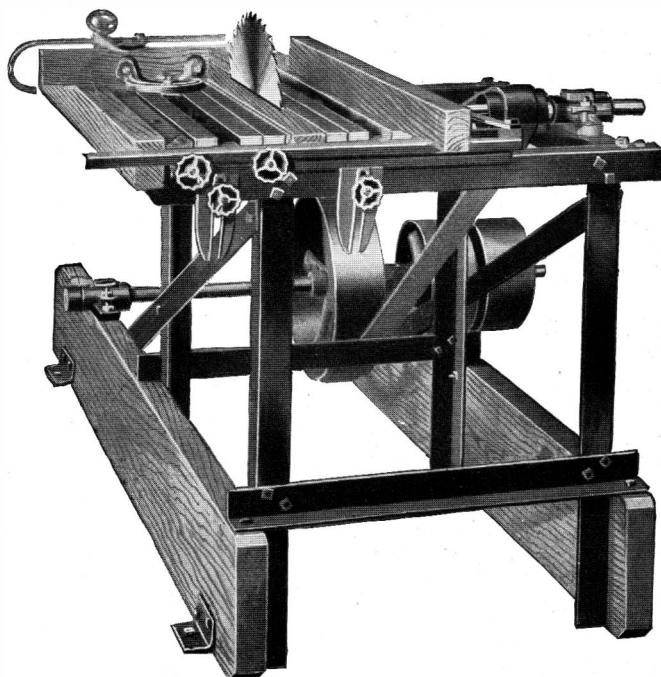
Saw Guides. Both rip and cross cut saw guides are furnished with this machine. The rip guide is conveniently attached to saw table by wheel hand screws in front of machine and is adjustable to cut any width up to 22 inches. The cross cut guide slides in channels provided on either side of the saw and is adjustable to saw at any angle up to 45 degrees. It is also provided with a stop for sawing to exact length.

The Saw Mandrel is made of 1½-inch cold rolled steel, turned down to take saws or cutter heads with 1-inch holes, has threaded end 4¼ inches long and is fitted with pulley 3 inches in diameter by 4 inches across face. This pulley, belted from the countershaft, gives a speed to the mandrel of slightly over five times the speed of the countershaft. The saws furnished with this machine are extra thin and highly tempered. They have special shaped teeth for fast cutting and are filed and set ready for use.

The Bearings on this machine are all full babbitted with a high quality anti-friction metal and are 4 inches wide, insuring perfect steadiness in running and prevention of overheating and sticking at high speed.

The Countershaft measures 1½ inches in diameter and is fitted up with three pulleys. Tight and loose pulleys for bringing power from line shaft measure 10 inches in diameter with 4-inch face, while drive pulley from countershaft to machine is 16 inches in diameter with 4-inch face. To accomplish best work on machine the countershaft should run about 500 revolutions per minute.

Power required on average work, 2 to 3-horse power; on heavy work, 4-horse power.



No. 9M4411 Price, \$43.25

No. 9M4411 Heavy Single Table Power Saw Machine, complete as illustrated and described above, including one rip guide, one angle adjustable cross cut guide, one 12-inch rip saw, one 10-inch cross cut saw, and 4-inch leather belt connecting countershaft to saw mandrel, but not including drive belt. Shipping weight, about 350 pounds. Shipped from factory in Cincinnati, Ohio. Price..... **\$43.25**

No. 9M4413 Heavy Single Table Power Saw Machine, exactly same as above, except without countershaft or 4-inch leather belt. This machine will be found especially convenient for those who already have a line shaft in use near the floor, making it possible to belt direct from line shaft to saw mandrel without using a countershaft. This machine is also convenient for use as a portable outfit where a small steam or gasoline engine can be mounted in rear of saw machine on the same sills, and belted direct to saw mandrel. Our price for this saw machine includes one rip guide, one angle adjustable cross cut guide, one 12-inch rip saw and one 10-inch cross cut saw. Shipping weight, about 285 pounds. Shipped from factory in Cincinnati, Ohio. Price..... **\$35.00**

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HEAVY SINGLE TABLE POWER

RIP AND CROSS CUT SAW MACHINE

WITH 6-INCH JOINTER, BORING ATTACHMENT AND COUNTERSHAFT.

The Same Machine as our No. 9M4411 shown on preceding page, except it is fitted with a 6-inch jointer and boring attachment. This machine can be used by two men at the same time, one boring, the other using circular saw or jointer. The guide on the left of circular saw will take in material up to 20 inches wide and has a guard to protect operator from circular saw while using jointer.

The Jointer is of great value for beveling, squaring or planing up to 6 inches wide. Tilting guide shown at right of circular saw holds material square or at an angle. Jointer plates are planed perfectly true, one in the rear is $2\frac{1}{2}$ feet long by 6 inches wide, one in front is 2 feet long by 6 inches wide. Both plates are furnished with hand wheels for raising or lowering. Plates can be raised and pushed together, completely covering jointer head and preventing injury to operator's fingers while doing other work on saw table. Jointer has a four-sided solid head with which we furnish two crucible steel knives 6 inches long.

Boring Attachment consists of chuck attached to end of saw mandrel, bored to take $\frac{1}{2}$ -inch round shank bits or drills, and an adjustable sliding support to hold the material while being bored. Price of machine does not include boring bits. See page 39 for boring bits.

Dimensions: Saw table, 2 feet 10 inches high, $22\frac{1}{4}$ inches wide and 3 feet long. Floor timbers, 4 feet 2 inches long, rest on floor 24 inches apart. Mandrel and shafting, $1\frac{1}{2}$ -inch cold rolled steel. Saws and cutter heads have 1-inch holes. Mandrel turns five times to one of countershaft.

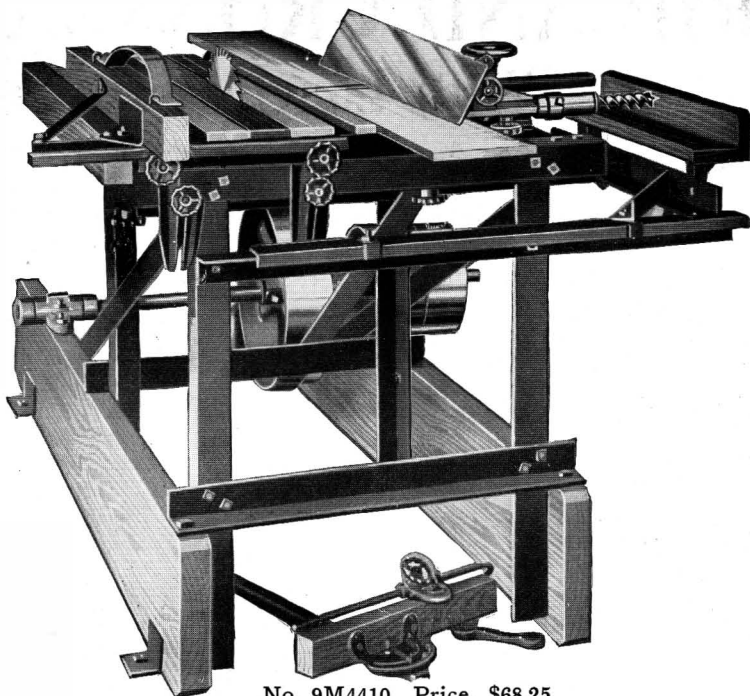
Power required on average work, 2 to 3-horse power; on heavy work, 4-horse power.

No. 9M4410 Heavy Circular Saw Machine, with 6-inch jointer and boring attachment, complete as illustrated. Price includes countershaft, one rip saw guide, one cross cut saw guide, one 12-inch rip saw, one 10-inch cross cut saw, and a 4-inch first quality leather belt connecting countershaft to saw mandrel, but does not include boring bits or drive belt. Shipping weight, about 450 pounds. Shipped from factory in Cincinnati, Ohio.

Price \$68.25

No. 9M4412 Heavy Circular Saw Machine, with 6-inch jointer, boring attachment, guides and saws, exactly same as above, but without countershaft, belt or boring bits. Shipping weight, 385 pounds. Shipped from factory in Cincinnati, Ohio.

Price \$60.00

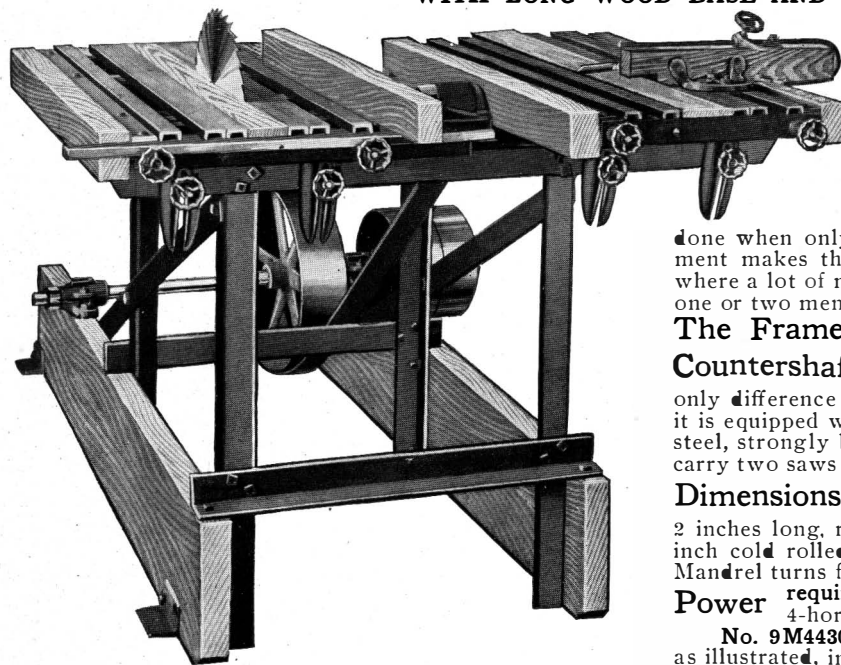


No. 9M4410 Price, \$68.25

HEAVY DOUBLE TABLE POWER

RIP AND CROSS CUT SAW MACHINE

WITH LONG WOOD BASE AND COUNTERSHAFT.



No. 9M4430 Price, \$58.25

This Is the Same Machine as our No. 9M4411 shown on preceding page, except it is fitted up with a double table arrangement which allows the use of both rip saw and cross cut saw at the same time; or a rip saw and a cutter head for either jointing, tenoning, molding, dadoing or grooving can be used. This machine can be operated by two men at the same time without one being in the way of the other. It saves time changing from one saw or cutter head to the other, which must be

done when only one saw table is available. The double table arrangement makes this a particularly desirable machine in a good size shop where a lot of men are at work or where there is much machine work for one or two men to do.

The Frame, Saw Tables, Mandrel, Saw Guides and Countershaft on this machine are exactly the same as on our No. 9M4411 described in detail on preceding page, the only difference being that it has two saw tables, mandrel is longer and it is equipped with two collars. Frame being made of extra heavy angle steel, strongly braced and bolted, it is amply strong and stiff enough to carry two saws running at same time.

Dimensions: Height of saw tables, 2 feet 10 inches; size of each, $22\frac{1}{4}$ inches wide by 3 feet long. Floor timbers, 4 feet 2 inches long, rest on floor 24 inches apart. Mandrel and shafting, $1\frac{1}{2}$ -inch cold rolled steel. Takes saws and cutter heads with 1-inch holes. Mandrel turns five times to one of countershaft.

Power required on average work, 2 to 3-horse power; on heavy work, 4-horse power.

No. 9M4430 Heavy Double Table Circular Saw Machine, complete as illustrated, including one rip saw guide, one angle adjustable cross cut saw guide, one 12-inch rip saw, one 10-inch cross cut saw, and with 4-inch first quality leather belt connecting countershaft to saw mandrel. Shipping

weight, about 425 pounds. Shipped from factory in Cincinnati, Ohio.

Price \$58.25

No. 9M4432 Heavy Double Table Circular Saw Machine, exactly same as above, but without countershaft or 4-inch leather belt. Shipping weight, about 360 pounds. Shipped from factory in Cincinnati, Ohio. Price..... \$50.00

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**Ball
Bearing**

20-Inch Swing Band Saw Machine

FOR FOOT AND HAND POWER

A Very Convenient Machine

where band sawing only is to be done, and especially recommended in shops not equipped with power. This machine will be found useful for cutting chair stock, rockers, etc., for making and repairing furniture; hounds, felloes and gear woods for wagon makers, and special shapes of various kinds for wood-workers generally. On account of the ball bearings and fine adjustment this machine runs very easily. It is well made throughout, strongly braced and will give long and satisfactory service.

Special Attachments.

Our Lathe Attachment No. 9M4230 and our Emery Wheel Stand No. 9M4240, shown on page 40, are well suited for use with this machine. They can be supported in front of band saw and both used on one stand at the same time.

DETAILED DESCRIPTION

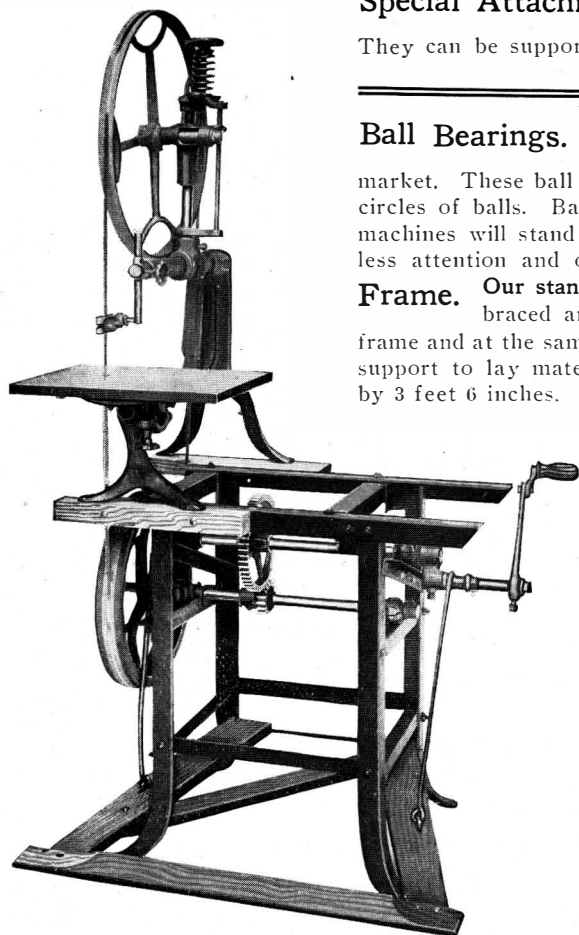
Ball Bearings. Machine is fitted with three ball bearing journals. These save a great deal of labor and make this the lightest running foot and hand power band saw on the market. These ball bearing journals are 2 inches wide and each journal has two complete rows or circles of balls. Balls are made of best die steel and run on steel races. Our ball bearing saw machines will stand an extra high speed under heavy pressure without heating, run easier and require less attention and oil than any other machines made.

Frame. Our standard frame is made of heavy angle steel with overlapping joints, is strongly braced and bolted and may be tightened to take up wear. Angle steel makes a rigid frame and at the same time is light enough to make moving easy. Frame makes a very convenient support to lay material on. Height of frame, 2 feet 9½ inches; covers floor space 3 feet 3 inches by 3 feet 6 inches.

Crank and Treadle. Crank and treadle are connected together, so that either or both may be used at same time. Crank is so adjusted as to come up as treadle goes down, thus giving operator the advantage of applying a great amount of power down on treadle at the same time lift is up on crank, or of resting operator by allowing him to change from one to the other method of operating machine. Treadles are extra long, allowing ample room for two or more persons to apply power at once. The second operator can use the crank at the same time he uses the foot treadle, which arrangement is very convenient in starting the machine and in handling heavy material.

Band Saw Wheels. Both upper and lower wheels have endless rubber bands securely fastened on the iron rims and ground true for the saw to run on. Lower wheel weighs about 40 pounds and also serves as a drive wheel.

Adjustment. Upper wheel has tilting adjustment on top bar for leading saw with proper tension against guides, which is a very desirable feature, as it saves considerable wear and tear on saws. This adjustment can be properly made while saw is running. Has spring and hand wheel at the top for regulating the tension of the saw. Hand wheel also serves to



No. 9M4206 Price, \$33.75

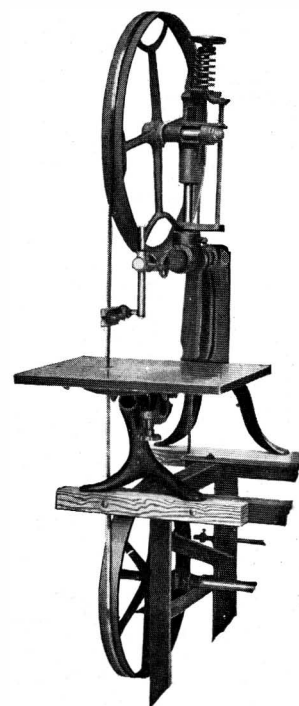
lower the upper wheel so as to take shorter saws. Machine will take saws any length from 11 feet 4 inches to 12 feet long and any width from ¼ to ¾ inch.

Tilting Table. Table is made of cast iron, planed true, and can be tilted for sawing bevels. Table measures 14¼x17½ inches, but can easily be made larger with wood, provision being made for bolting same to the iron. Table stands 38 inches from the floor, just the right height for the average man.

Saw Guides. Machine has two adjustable saw guides, one above, the other below the table. Upper guide can be raised to saw material up to 6½ inches thick.

No. 9M4206 Ball Bearing 20-Inch Swing Band Saw Machine, as illustrated and described, for foot and hand power only. Equipped with three ball bearing journals and one ¾-inch band saw 12 feet long. Shipping weight, about 265 pounds. Shipped from factory in Cincinnati, Ohio. **\$33.75**

No. 9M4330 20-Inch Swing Band Saw Attachment only, as illustrated. Not furnished with frame. Band saw wheels, tilting table, adjustment, etc., exactly same as our No. 9M4206 machine described above. Lower wheel bored to take 1-inch shaft. Price includes one ¾-inch band saw 12 feet long. Shipping weight, about 100 pounds. Shipped from factory in Cincinnati, Ohio. **\$18.00**



No. 9M4330 Price, \$18.00

Note— Lower wheel in the above Band Saw Attachment is bored to take 1-inch shaft, but we can furnish it bored to take any other size up to 1½ inches at an extra charge of 50 cents. For those who desire to build their own stand and not use this band saw attachment on our standard circular saw frames a shaft with bearings, etc., is necessary. We quote countershaft and belt shifter that can be used with this 20-inch band saw attachment as follows:

No. 9M4331 Shaft 1 inch diameter by 28½ inches long, with two habbitted bearings ready to bolt to frame, tight and loose pulleys and belt shifter, pulleys 8 inches in diameter by 3 inches across face. Shipping weight, about 15 pounds. Shipped from factory in Cincinnati, Ohio. Price **\$4.25**

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22-INCH SWING BAND SAW MACHINE

FOR LIGHT BELT POWER

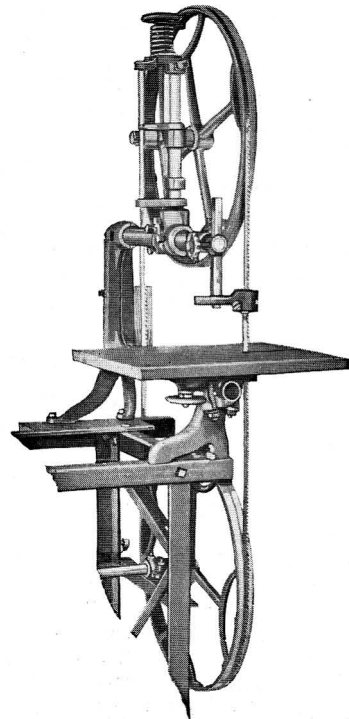
In Shops Equipped for Power, where band sawing only is to be done, this machine will be found highly satisfactory and will soon pay for itself. It cuts to the center of a 44-inch circle, and is large and strong enough for practically any general jobbing or novelty shop. If you ever need a band saw, and your work does not require over 22-inch swing, this is the machine for you to buy. No other band saw on the market at anything like our price will do as much work in as short a time and with as little power as this machine.

On Page 40 of This Catalog we show our No. 9M4230 Lathe Attachment and our No. 9M4240 Emery Wheel Attachment, both of which can be used in connection with this machine. They can be supported on the frame, in front of band saw and both used at the same time.

DETAILED DESCRIPTION

Band Saw Wheels. Both upper and lower wheels are 22 inches in diameter and have endless rubber bands securely glued to their iron rims and ground true for the saw to run on.

Adjustment. Upper wheel has tilting adjustment on top bar for leading saw in proper path, also for keeping it lined up against the guides, which is a very desirable feature, as it saves considerable wear and tear on saws. This adjustment can be properly made while saw is running. Has spring and hand wheel at the top for regulating the tension of the saw. Hand wheel also serves to lower the upper wheel so as to take shorter saws. Machine will take saws any length from 11 feet 4 inches to 12 feet long and any width from $\frac{1}{8}$ to $\frac{3}{4}$ inch wide.



No. 9M4291 Price, \$22.00

Tilting Table. Table is made of cast iron, planed true, and can be tilted for sawing bevels. Table measures $14\frac{1}{4} \times 17\frac{1}{2}$ inches, but can easily be made larger with wood, provision being made for bolting same to the iron. Table stands 38 inches from the floor, a convenient height for the average man.

Saw Guides. Machine has two adjustable saw guides, one above, the other below the table. Upper guide can be raised to saw material up to $6\frac{1}{2}$ inches thick.

Band Saw Blades. Our price includes one $\frac{3}{8}$ -inch band saw, 12 feet long, made of best clock spring steel, properly brazed, tempered, sharpened and set and all ready for use. It is often a good plan to order one or two extra band saws to come with machine, as they are all shipped from same factory. See page 39 for prices of extra saws.

Frame. This band saw is mounted on our standard wrought angle steel frame, the neatest, strongest and most rigid saw frame ever used in a light saw. Put together with overlapping joints and fastened with machine bolts which can be tightened when necessary to take up wear. Strongly braced, as shown in illustration, and provided with holes in feet for bolting to floor. Frame extends to the side of the saw table, making a convenient support to lay material on. Height of frame, 2 feet $9\frac{1}{2}$ inches; covers floor space 3 feet 3 inches by 3 feet 6 inches.

Pulleys and Shafting. Machine has two pulleys, one tight and one loose. Pulleys are 8 inches in diameter by 3 inches across the face. Shafting is 1-inch cold rolled steel. Bearings are wide and accurate, babbitted with best anti-friction metal, require but little oil and if properly taken care of will not overheat. Belt shifter is strong and substantial, works smoothly and does not injure the belt. Pulleys should make 500 revolutions per minute, driving saw mandrel 1,500 revolutions per minute.

Power. Requires from 1 to 2-horse power to operate machine, according to the material being sawed.

No. 9M4292 Light Belt Power 22-Inch Swing Band Saw Machine, complete as illustrated and described, with one $\frac{3}{8}$ -inch band saw 12 feet long. Shipping weight, about 200 pounds. Shipped from factory in Cincinnati, Ohio.

Price

\$36.50

No. 9M4291 Light Belt Power 22-Inch Swing Band Saw Attachment only. Not furnished with frame, countershaft or belt shifter. Band saw wheels, tilting table, saw guides and adjustment exactly the same as our No. 9M4292 machine described above. Lower wheel bored to take 1-inch shaft. Price includes one $\frac{3}{8}$ -inch band saw 12 feet long. Shipping weight, about 100 pounds. Shipped from factory in Cincinnati, Ohio.

Price

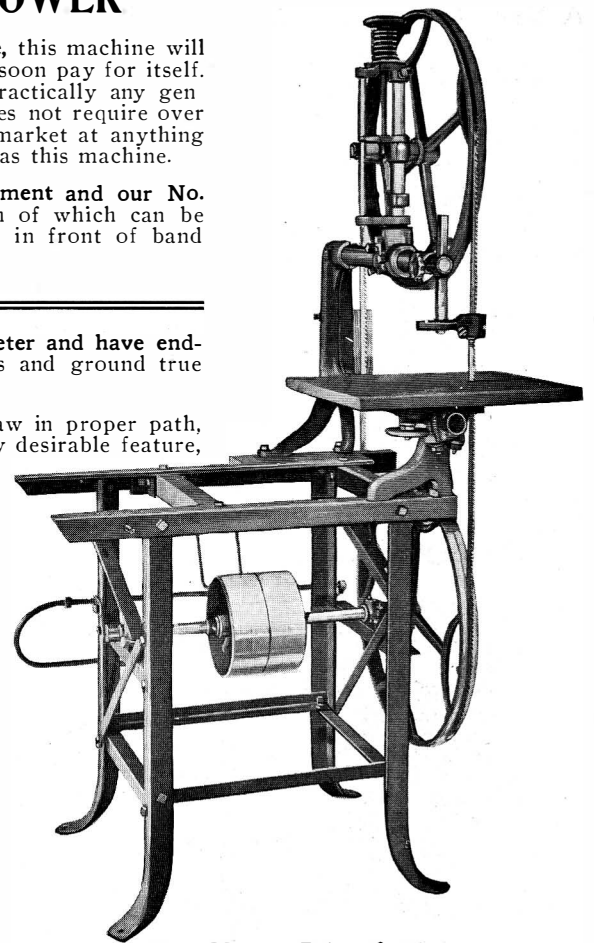
\$22.00

Note. Lower wheel in the above Band Saw Attachment is bored to take 1-inch shaft, but we can furnish it bored to take any other size up to $1\frac{1}{8}$ inches at an extra charge of 50 cents. For those who desire to build their own stand and not use this band saw attachment on our standard circular saw frames a shaft with bearings, etc., is necessary. We quote countershaft and belt shifter that can be used with this 22-inch band saw attachment as follows:

No. 9M4331 Shaft 1 inch diameter by $28\frac{1}{2}$ inches long, with two babbitted bearings ready to bolt to frame, tight and loose pulleys and belt shifter; pulleys 8 inches in diameter by 3 inches across face. Shipping weight, about 15 pounds. Shipped from factory in Cincinnati, Ohio.

Price

\$4.25



No. 9M4292 Price, \$36.50

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36-IN. SWING BAND SAW MACHINE

FOR BELT POWER ONLY

A Powerful Machine designed for heavy work and very desirable for use in the larger size shops. The band saw for cutting thick heavy timbers or for cutting a number of thicknesses of boards at one time. It is equally well adapted to all kinds of work, light, medium and heavy; it runs smoothly and steadily; the bearings are wide and true and it will do more work in proportion to the power used than any other machine on the market. This 36-inch swing machine is especially recommended for cutting wagon hounds and felloes, barrel headings, chair rockers, boat shapes, or for any purpose that a first class band saw is required.

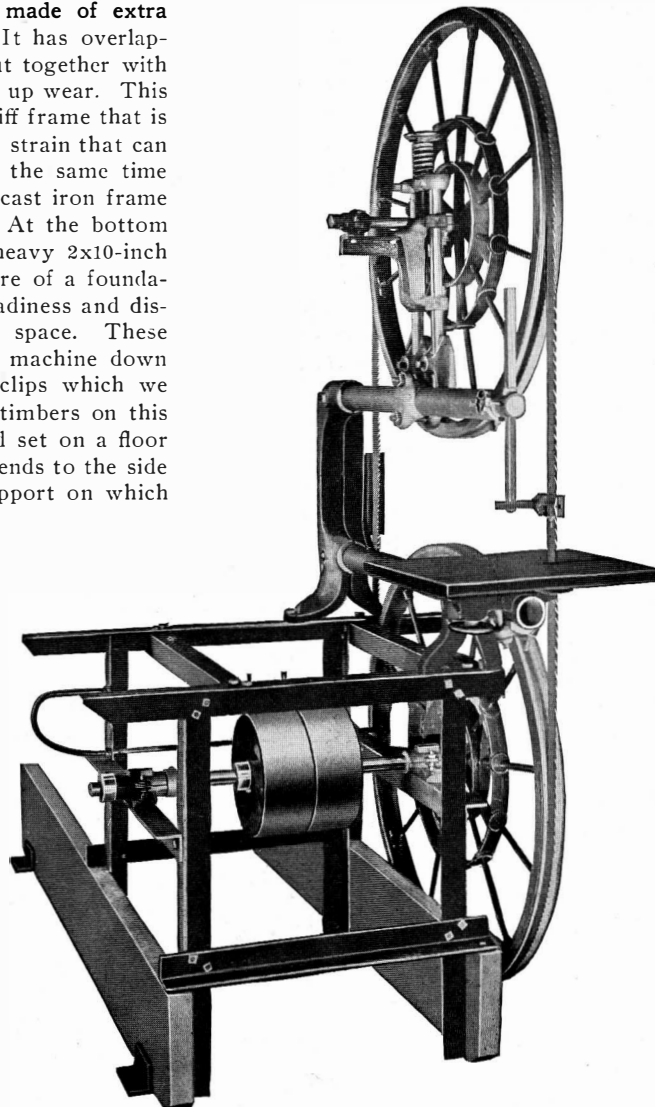
DETAILED DESCRIPTION

The Frame of this machine is made of extra heavy angle steel. It has overlapping joints, is strongly braced and put together with bolts which may be tightened to take up wear. This angle steel makes a very rigid and stiff frame that is amply strong enough to stand all the strain that can be put upon it by the drive belt, at the same time weighing but little over half what a cast iron frame of the same strength would weigh. At the bottom the angle steel legs are bolted to heavy 2x10-inch dressed pine timbers, which give more of a foundation to the machine, increase the steadiness and distribute the weight over more floor space. These timbers also make it easy to fasten machine down to the floor with the special floor clips which we furnish for that purpose. The pine timbers on this machine are 4 feet 6 inches long and set on a floor space 24 inches wide. The frame extends to the side of the saw, making a convenient support on which to lay material or mount any of our attachments.

Shaft and Pulleys. Shafting used in this machine is made of 1½-inch cold rolled steel. Bearings are 4 inches wide, babbitted with first quality anti-friction metal, run steadily and will stand an extra heavy load at a very high speed without heating. Tight and loose pulleys are 12 inches in diameter by 3 inches across the face. Pulleys should run about 350 revolutions per minute in order to get the best results. Machine is provided with first class belt shifter which works smoothly and does not injure belt. Our price does not include drive belt.

Band Saw Wheels. Both upper and lower band saw wheels are 36 inches in diameter by 2 inches across face. They have wood rims and are turned true. Both wheels have endless rubber bands, ground perfectly true for saw to run on.

Adjustment. Upper wheel has tilting adjustment on top bar for leading saw in proper path and lining it up against the guides, which is a very desirable feature, as it saves considerable wear and tear on saws. This adjustment can be properly made while saw is running. Has spring and hand wheel



No. 9M4422 Price, \$60.00

at the top for regulating the tension of the saw. Hand wheel also serves to lower the upper wheel so as to take shorter saws. Machine will take saws any length from 16 feet 6 inches to 17 feet 6 inches long and any width from ⅛ to 1 inch.

Tilting Table. Table is made of cast iron planed true, and can be tilted for sawing bevels. Table measures 14¼x17½ inches, but can easily be made larger with wood, provision being made for bolting same to the iron. Table stands 38 inches from the floor, a convenient height for the average man.

Saw Guides. Machine has two adjustable saw guides, one above, the other below the table. Upper guide can be raised to saw material up to 10 inches thick.

Band Saw Blades. Our price includes one ⅝-inch band saw blade 17 feet 6 inches long, made of best clock spring steel, properly brazed, tempered, sharpened and set. We send out our band saw blades all ready to put on machine and start to work. We suggest that you include one or two extra saw blades with your order, as you will need them later on, and our price quoted on page 39 is a very low one, quality of goods considered.

Power. This band saw machine requires 2 to 3-horse power on ordinary work. On extra heavy work, or when several thicknesses of timber are sawed at one time, it requires about

4-horse power. The small amount of power necessary to operate this machine is one of its strongest points. Where power is paid for according to the amount used, as in the case of an electric motor or gas engine, this economy of power will be appreciated.

No. 9M4422 36-Inch Swing Band Saw Machine. Complete, as illustrated and described above. Furnished with one ⅝-inch band saw 17 feet 6 inches long. Shipping weight, about 400 pounds. Shipped direct from factory in Cincinnati, Ohio.

Price **\$60.00**

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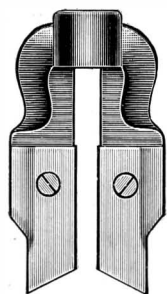
MORTISING AND TENONING MACHINE

FOR FOOT POWER

A THOROUGHLY PRACTICAL AND EFFICIENT MACHINE. MAKES MORTISES AND TENONS RAPIDLY, DOES THE WORK ACCURATELY, IS QUICKLY ADJUSTED, DOES NOT CHOKE UP AND IS GUARANTEED TO GIVE ENTIRE SATISFACTION.

Range of Work That Can Be Done on our Improved Mortising and Tenoning Machine: Machine will make mortises any width desired and up to 10 inches deep by 1 inch thick. Will make tenons any length desired and up to 10 inches wide by $\frac{3}{4}$ inch thick, with 1-inch shoulder on each side.

Detailed Description. Main frame, legs and treadle are made of $1\frac{1}{2}$ -inch wrought angle steel; so there is no danger of broken legs or frame, as with the cast iron machines so generally offered. Bed plates, made of 2-inch wrought angle steel with wrought steel guides. There is an opening in the center of the guide to make room for the tenoning tool. Frame has wide spread and is strongly braced to sustain a powerful leverage. Chisel shaft is made of 1-inch cold rolled steel and has two long babbitted bearings. Large spring is $1\frac{3}{4}$ inches in diameter by 20 inches long, made of finest crucible steel and will retain its strength for years. This improved mortising and tenoning machine is especially desirable for its



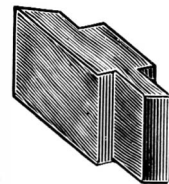
Tenoning Tool.

quickness and accuracy of adjustment. Hand wheel in front moves guide back and forth and hand wheel beneath locks it securely. Guide bed can be tilted at any angle, and machine can be changed to thickness desired without interfering with the angle. All adjusting screws have hand wheels or wing nuts which make changing the machine easy. The machine is made of the best materials throughout, accurately put together and runs as smooth and easy as machines selling for three times our price.

As a Mortising Machine. The bed plate is always at the same height, the adjustments for different widths material being made from above. This admits of supports being made for either end of long work without having to change them every time you change to a different size material. Thumbscrew in back, not shown, loosens the mandrel but does not drop it. Being on an inclined bearing, the mandrel and its parts slide down gradually to the width of the material being worked. The adjustments for different thicknesses of material are quick and accurate.

Turning the hand wheel in front of the bed plate moves the bed back and forth, and the hand wheel underneath holds it securely after proper adjustment has been made. The guide bed rests on a tilting device which can be tilted to any desired angle, and a scale is provided to indicate the angle. Machine can be changed to thickness desired without interfering with angle of guide bed. Chisel shaft

may be adjusted to any angle by turning the handle H, and held there securely by tightening thumbscrew T. The weight of the shaft and treadle hangs on the large spring at the top, so when the treadle forces the tool against the material being worked, there is no lost motion or jerk, a feature possessed by no other machine. The leverage in the treadle can be made shorter or longer, as the nature of the work requires, or a special long stroke of 5 inches for tenoning can



Sample of the Work Done With This Machine.

be made. A rod from the treadle connects with the collar that slides up and down on the shaft. By turning the screw wheel L on the lower end of this shaft, a positive adjustment for the depth desired to be cut is obtained.

As a Tenoning Machine. The perfect and convenient adjustment of the machine, as referred to for mortising, also applies to it for tenoning.

Machine will cut tenons 5 inches wide from one side, or 10 inches wide by reversing and cutting from both sides. Cuts tenons from $\frac{1}{4}$ to $\frac{3}{4}$ of an inch thick and with a 1-inch shoulder on each side. Bits are adjustable right and left and there is a scale to determine the exact thickness of tenon to be cut. Bits strike the shoulder of tenon with a shearing cut, severing the outside first to prevent tearing. The cutting edge also extends around the inside corner and shaves the side of the tenon smooth. Bits for mitering, shearing, etc., can easily be made to fit the tool in place of tenon bits if desired. When using tenoning tool, it is necessary to use a strip of wood on the guide bed for bits to cut into.

Shipped Direct From Factory.

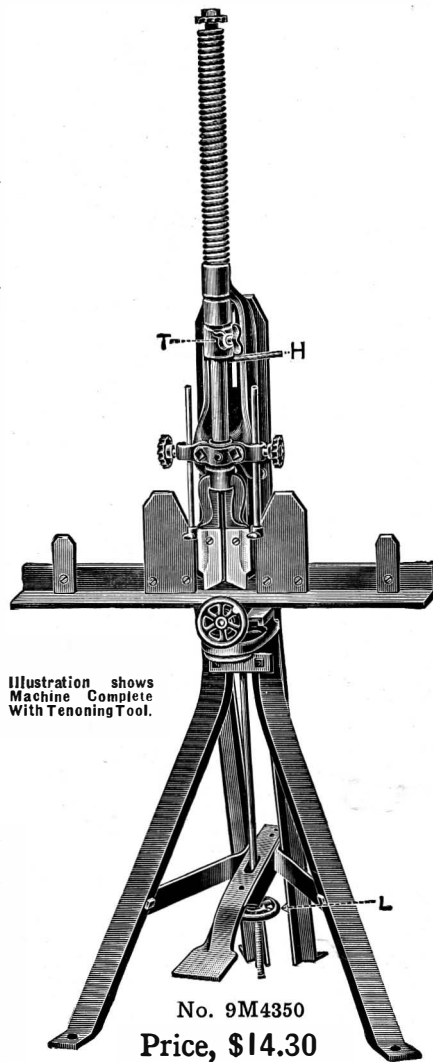
This Mortising and Tenoning Machine, chisels and tenoning tools, shipped direct from factory in Cincinnati, Ohio, from which point customer pays the freight. Our machinery is carefully crated and all small loose parts are boxed, thus securing for our customers a low rate of freight and insuring the safe arrival of their goods. The shipping weight of this Mortising and Tenoning Machine is about 100 pounds.



Mortising Chisel.

Please Note that our price of \$14.30 is for Mor-

tising and Tenoning Machine only and does not include mortising chisels nor tenoning tools. Some of our customers want this machine for doing only one kind of work or need only a few sizes of chisels, so we quote a low price on the machine, and list the chisels and tools separately. In making up your order include the chisels and tools you will need.



No. 9M4350

Price, \$14.30

Illustration shows Machine Complete With Tenoning Tool.

No. 9M4350 Machine as above described, but without mortising chisels or tenoning tools.

Price

No. 9M4351 Mortising Chisels.	Size, inch.....	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Weight about, ounces.....		5	5	6	6	7	8	9
Price, each.....		.94c	.99c	\$1.07	\$1.15	\$1.24	\$1.33	\$1.39

No. 9M4352 Tenoning Tool, adjustable to cut any size from $\frac{1}{4}$ to $\frac{3}{4}$ inch. Weight, about 3 pounds. Price.....\$3.35

\$14.30

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BALL BEARING COMBINATION

RIP, CROSS CUT AND BAND SAW MACHINE

FOR FOOT, HAND OR BELT POWER.

Strong, Substantial and Durable, built for practical, constant shop use and will soon pay for itself in time saved.

Contractors, Carpenters and Builders. No carpenter shop is complete without one of these machines. Also useful to take out on the job. Does cross cutting, ripping and band sawing; cuts special shapes, window and door frame stock; utilizes second hand and scrap lumber. Unequaled for cutting small boat timbers.

Wheelwrights, Blacksmiths and Wagon Makers. Does heavy cross cutting, ripping and band sawing; takes up but little floor space and requires but little power. For cutting special shapes, hounds, fellows, gear woods, etc., this machine is unsurpassed.

Cabinet Makers, Furniture Repairmen, Picture Frame Makers, Box, Barrel and Crate Manufacturers. Practically the only machine needed in your shops. Rips, cuts to length, and makes special shapes. Cuts chair stock, rockers, etc., several thicknesses at one time; cuts staves, headings, etc., all on the same machine.

Woodworkers Generally. No matter whether your business is large or small, whether you have power in your shop or not, if you ever need a light cross cut, rip or band saw you cannot afford to do without this machine.

Hundreds of them all over the country are being used in different lines of work and all of them are giving satisfaction.

Ball Bearings save almost half the power, insure the lightest running machine on the market and make it possible for one man with this machine to do work equal to two men with any other. Each machine has five ball bearing journals 2 inches wide and each journal has two complete rows of balls. These wide double ball bearing journals steady the shafts and insure easy running. The balls used in our machines are made from best die steel and run on steel races, hardened and ground. These ball bearing journals will stand an exceedingly high speed under heavy pressure. They never heat and require but little attention, oiling, etc.

Frame. Our Standard Angle Steel Frame. Very rigid, strong and durable. Made entirely of heavy angle steel. Height of circular saw table, 2 feet 9½ inches. Machine covers floor space 3 feet 3 inches by 3 feet 6 inches. Frame is put together with bolts, which may be tightened from time to time to take up any wear.

Gearing. Machine has a change of speed to suit different kinds of work. With the cog wheels in gear and the link belt thrown out, the circular saw turns three times to one of the crank, which is the proper speed for heavy ripping. With the link belt in gear and the cog wheels thrown out, the circular saw turns nine times to one of the crank, which is the proper speed for cross cutting. For band sawing and all other fine work, the high speed gives best results. The change from one speed to another is easily and quickly made and either fast or slow speed works with foot and hand power at the same time. Driving wheel, which is also used as lower band saw wheel, is 18 inches in diameter and weighs 40 pounds.

Crank and Treadle. Crank and treadle are connected together so that the operator may use either, or the crank and one foot at the same time. The crank is so adjusted as to come up as the treadle goes down, so you can push down on the treadle at the same time you pull up on the crank; or to rest the operator by allowing him to change from one to the other method of operating machine. The foot treadles are extra long, extending the whole width of the machine, and two or even three men can apply power for extra heavy work. The crank is adjustable to different lengths by means of an eccentric near the handle.

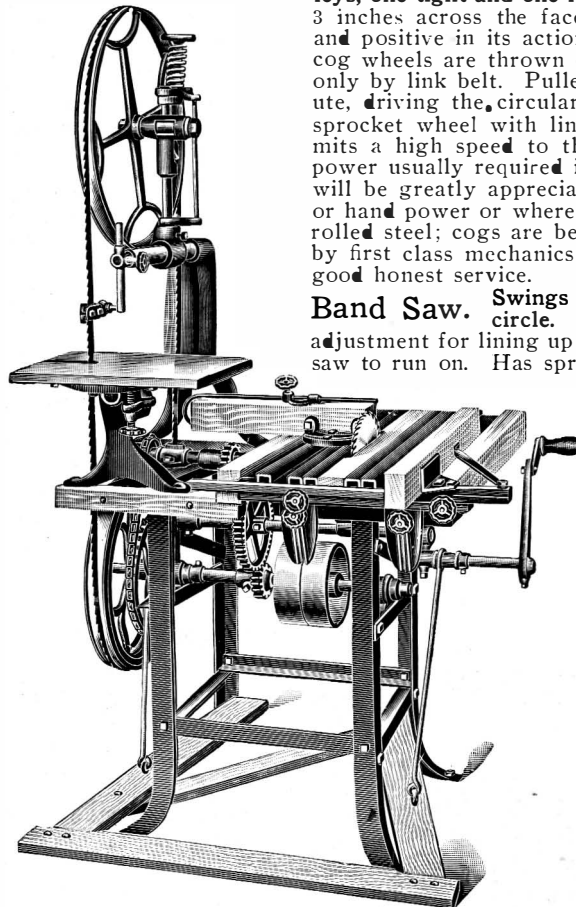
Power required to operate this combination machine, from 1 to 2-horse power, according to material being sawed.

No. 9M4211 Ball Bearing Combined Rip, Cross Cut and 20-Inch Swing Band Saw Machine, as illustrated and described, equipped for foot, hand or belt power. Complete with one 10-inch rip saw, one 8-inch cross cut saw and one ¾-inch band saw 12 feet long. Shipping weight of machine complete, about 360 pounds. Shipped from factory in Cincinnati, Ohio.

Price, without drive belt.

\$54.75

No. 9M4209 Light Power Combination Rip, Cross Cut and 20-Inch Swing Band Saw Machine. Same as our No. 9M4211, illustrated and described above, except that it is arranged for power use only. Furnished with habbitted bearings, a lighter hand wheel and not equipped with treadle and crank. Complete with pulleys, saws, etc., as furnished with No. 9M4211 machine. Shipping weight, about 300 pounds. Shipped from factory in Cincinnati, Ohio.

\$48.00

No. 9M4211 Price, complete, \$54.75

Pulleys, Sprocket Wheels and Shafting. There are two pulleys, one tight and one loose. Pulleys are 8 inches in diameter by 3 inches across the face. Belt shifter is strong and substantial and positive in its action. When machine is run by belt power, cog wheels are thrown out of gear and the power is transmitted only by link belt. Pulleys should make 400 revolutions per minute, driving the circular saw 1,200 revolutions per minute. The sprocket wheel with link belt running over ball bearings transmits a high speed to the saw mandrel with about one-half the power usually required in other machines. The saving of power will be greatly appreciated where the machines are run by foot or hand power or where power is limited. Shafting is 1-inch cold rolled steel; cogs are best gray iron. Machines are put together by first class mechanics in a workmanlike manner and will give good honest service.

Band Saw. Swings 20 inches, cutting to center of a 40-inch circle. Upper wheel has a tilting and angular adjustment for lining up saw. Both wheels have rubber bands for saw to run on. Has spring and hand wheel at top for regulating tension of saw. The hand wheel also serves to lower upper wheel to take shorter saws. Adjustable saw guides are above and below the table. The one above can be raised so as to saw material 6½ inches thick. Band saw table is made of cast iron, planed true, and can be tilted for sawing bevels. Table stands 38 inches from the floor. Size of table 14¼x17½ inches, but can easily be made larger with wood, provision being made for bolting same to the iron. Band saw can be taken off if necessary for extra long cross cutting. Machine takes band saws from ⅛ to ¾ inch wide and from 11 feet 4 inches to 12 feet long. Band saw does not interfere with circular saw. Band saw operator stands at the side, while the man running the circular saw stands in front of the machine. Both operators can apply power at once, and a helper can turn the crank if extra heavy work is being done.

Saw Table. Made of heavy angle steel with channel steel cross pieces. Table is hinged in back to raise and lower, adjusting the depth of cut to 3 inches. Has piece of hardwood 2½ inches wide fitted alongside saw, which may be removed so that different cutter heads may be used on saw mandrel. Length of saw table, 3 feet.

Saw Guides. Rip guide is quickly adjusted for sawing any width up to 22 inches. Securely held in line with saw by two hand wheels in front. Can also be used as a stop when doing cross cut work. Guide can easily be changed to other side of saw if desired. Cross cut guide has channel iron slide, which runs in iron grooves on either side of saw. Provided with adjustable stop for cutting to lengths and it is also adjustable to cut any angle.

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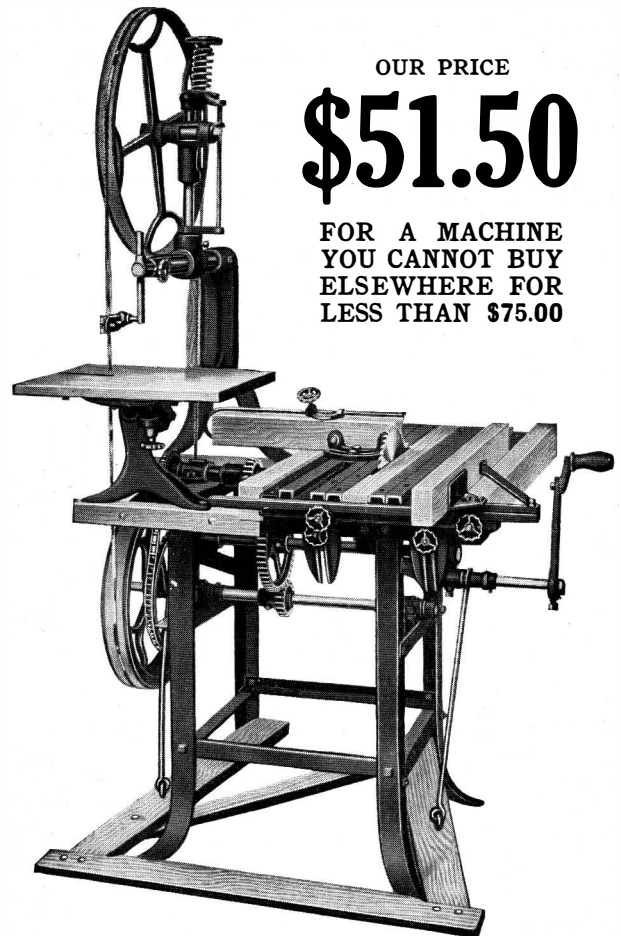
BALL BEARING COMBINATION RIP, CROSS CUT AND BAND SAW MACHINE

FOR FOOT AND HAND POWER

Combination Circular and Band Saw Machine that will be found very useful in shops not equipped with power. The ball bearings, sprocket wheel and link belt, closeness of adjustment and general high quality of this machine make it easy running and capable of turning out a great quantity of work. This combination machine is exactly the same as our No. 9M4211 machine fully described on the preceding page, except that it is equipped for foot and hand power only, not being furnished with pulleys and belt shifter. The frame, gearing, crank and treadle and all other parts of this machine are identically the same as in our No. 9M4211 on preceding page. If you have not power in your shop and are ever in need of such a machine as this one, we cannot recommend this combination saw machine too highly. It will do your ripping and cross cutting, your band sawing, your cutting of special shapes, etc., more economically and better than you could possibly do the same work by hand. You need have no fear that this machine will fail to please you. Read our Quality Guarantee and Thirty Days' Trial Offer on the inside cover page of this book. If the machine does not please you your money will be promptly returned, together with any transportation charges you may have paid. We have sold hundreds of these machines all over the country and they are giving the best of satisfaction.

No. 9M4210 Combination Rip, Cross Cut and 20-Inch Swing Band Saw Machine, for foot and hand power. Furnished with five ball bearing journals, rip guide, cross cut guide, one 10-inch rip saw, one 8-inch cross cut saw and one $\frac{3}{8}$ -inch band saw 12 feet long. Shipping weight, about 350 pounds. Shipped from factory in Cincinnati, Ohio.

Price **\$51.50**



No. 9M4210 Price, \$51.50

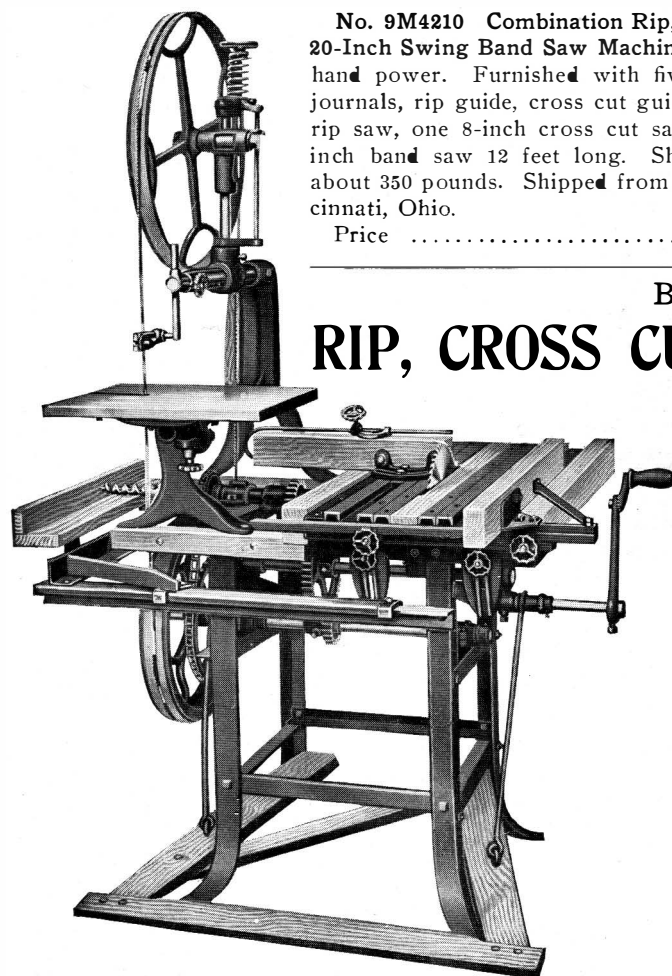
BALL BEARING COMBINATION RIP, CROSS CUT AND BAND SAW MACHINE

WITH BORING ATTACHMENT FOR FOOT
AND HAND POWER

A Combination of Three Useful Machines in One, each independent of the other, complete in itself and ready for use without change. It will do your circular saw work, band saw work or boring without changing a set screw and with no delay. This combination machine does the work of three separate machines, requires no more floor space than a machine to do but one kind of work and but little more power than a single machine would require. It is exactly the same as our No. 9M4210 machine described above, except that it is furnished with boring attachment.

Boring Attachment. Consists of chuck which takes $\frac{1}{2}$ -inch round shank boring bits or drills fitted on end of saw mandrel, and an adjustable sliding support bolted on the sides of the saw machine. This support holds material being bored and slides to and from the bit, making it very convenient for handling heavy timbers, etc. The high speed at which the saw mandrel revolves causes the boring bit to cut very fast. This attachment greatly increases the usefulness of the machine and is well worth the difference in price. Our price does not include boring bits. See page 39 for bits.

This Combination Circular, Band Saw and Boring Machine is one of the most complete and convenient machines that can be put in a shop. It will do your ripping, cross cutting, band sawing and boring.



No. 9M4213 Price, \$57.00

No. 9M4213 Combination Rip, Cross Cut and 20-Inch Swing Band Saw Machine with Boring Attachment, for foot and hand power. Has five ball bearing journals, rip guide and cross cut guide. Price includes one 10-inch rip saw, one 8-inch cross cut saw and one $\frac{3}{8}$ -inch band saw 12 feet long, but does not include boring bits. Shipping weight, about 370 pounds. Shipped from factory in Cincinnati, Ohio.

Price **\$57.00**

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BALL BEARING COMBINATION

Rip, Cross Cut and Band Saw Machine

With Boring and Spoke Tenoning Attachments, for Hand or Foot Power

Especially Adapted for Wagon Makers, Blacksmiths and Wheelwrights. Ripping, cross cutting and band sawing done quickly, and machine requires but little power. Felloe boring spoke tenoning done accurately and much easier than by hand. Any or all of the attachments can be used at one time.

Ball Bearing Journals used in this machine are the greatest improvement ever put on a foot, hand or light belt power saw. They save about one-half the power, require less attention, oiling, etc., than any other bearings and stand a high speed under heavy pressure without heating. This machine has five ball bearing journals, each fitted with two complete circles of balls. Balls used are best die steel, accurately machined, properly tempered and run in hardened steel races.

Circular Saw. Frame is made of heavy angle steel, braced and bolted. Saw table is also made of angle steel, with channel steel cross pieces. Saw table is hinged in rear, and can be raised, giving an adjustment of 3 inches in depth of cut. Machine is furnished with one rip and one cross cut guide. Rip guide is adjustable for sawing any width up to 22 inches and works on either side of saw. Cross cut guide has channel iron slide which works in grooves on either side of saw and can be adjusted to cut material at any angle up to 45 degrees. Price includes two circular saws, made of best crucible saw steel, filed and set, ready for use.

Band Saw has 20-inch swing, cuts to the center of a 40-inch circle. Upper wheel, 22 inches in diameter; lower wheel, 18 inches in diameter; both wheels have rubber bands for saw to run on. Upper wheel has hand screw and spring to regulate tension of saws, also adjustable to take different length saws. Has two saw guides, one above and one below the band saw table. Upper guide can be raised so as to saw material up to 6½ inches thick. Band saw table is 14¼x17½ inches but can be made larger with wood strips if desired, bolt holes for fastening being provided. Saw table is made of cast iron planed true and can be tilted for sawing bevels. Table stands 38 inches from the floor, the most convenient height for general use. Machine takes saws from ⅝ to ¾ inch wide and from 11 feet 2 inches to 12 feet long. Price includes ⅝-inch band saw, made of best clock spring steel, brazed and filed, ready for use.

No. 9M4212 Combination Rip, Cross Cut and 20-Inch Swing Band Saw Machine as illustrated, with boring and spoke tenoning attachments, for foot or hand power. Has five ball bearing journals, one 10-inch rip saw, one 8-inch cut off saw and one ⅝-inch band saw 12 feet long. Wooden bed and auger bits not furnished. Shipping weight, about 415 pounds. Shipped from factory in Cincinnati, Ohio. Price..... **\$71.25**

No. 9M4222 Combination Rip, Cross Cut and 20-Inch Swing Band Saw Machine, with boring and spoke tenoning attachments, for foot, hand or belt power. The same machine exactly as No. 9M4212, except fitted with tight and loose pulleys and belt shifter in addition to the crank and foot treads. Pulleys, 8 inches diameter by 3 inches face. Furnished with one 10-inch rip saw, one 8-inch cut off saw and one ⅝-inch band saw 12 feet long. Wooden bed and auger bits not furnished. Shipping weight, about 425 pounds. Shipped from factory in Cincinnati, Ohio. Price..... **\$74.75**

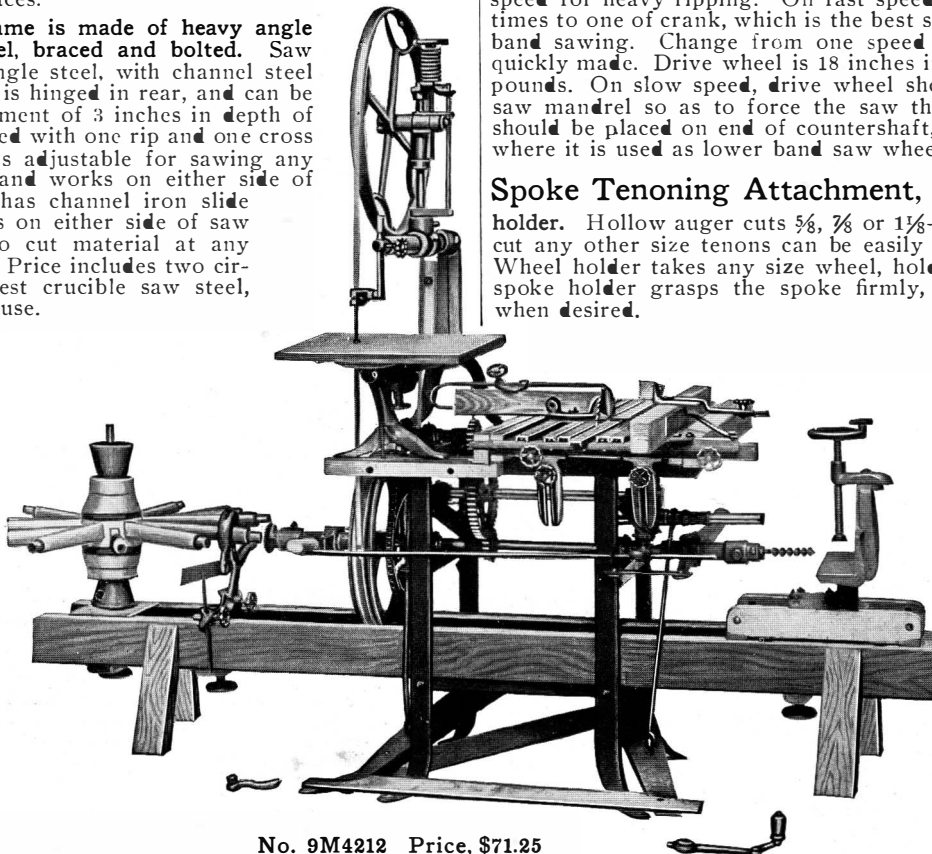
No. 9M4299 Combination Rip, Cross Cut and 22-Inch Swing Band Saw Machine, with boring and spoke tenoning attachments, for belt power only. The same machine as No. 9M4212, except without ball bearings, crank and foot treads, but fitted with babbitted bearings, tight and loose pulleys, belt shifter and a 22-inch swing band saw. Pulleys, 8 inches diameter by 3 inches across face. Furnished with one 10-inch rip saw, one 8-inch cross cut saw and one ⅝-inch band saw 12 feet long. Wooden bed and auger bits not furnished. Shipping weight, about 375 pounds. Shipped from factory in Cincinnati, Ohio. Price..... **\$67.50**

Crank, Treadle and Gearing. Operator can use either heavy work he can use both at the same time. Crank comes up as treadle goes down, enabling operator to push down on treadle at the same time he pulls up on crank. Treadles are extra long and power can be applied by two or three men if necessary. Machine has two speeds to suit different kinds of work. On slow speed, circular saw turns three times to one of crank, which is the best speed for heavy ripping. On fast speed, circular saw turns nine times to one of crank, which is the best speed for cross cutting and band sawing. Change from one speed to another is easily and quickly made. Drive wheel is 18 inches in diameter and weighs 40 pounds. On slow speed, drive wheel should be placed on end of saw mandrel so as to force the saw through. On fast speed it should be placed on end of countershaft, as shown in illustration, where it is used as lower band saw wheel.

Spoke Tenoning Attachment, including hollow auger, spoke holder and wheel holder. Hollow auger cuts ⅝, ⅞ or 1⅝-inch tenons. Bushings to cut any other size tenons can be easily made by any blacksmith. Wheel holder takes any size wheel, holding it securely while the spoke holder grasps the spoke firmly, but releases it instantly when desired.

Boring Attachment, with adjustable clamping support, has a lever to throw the bit to and from the work, and an adjustable stop to regulate depth of hole. Has two speeds, one for light, the other for heavy boring. Will easily bore a 2-inch hole into hardwood. Chuck holds ordinary square shank brace bits and drills. The boring attachment, being on the lower shaft, is entirely out of the way of all work being done on top of the saw table. Power for boring attachment is supplied from foot treadle only, and hand crank should be removed as it cannot revolve when boring bit is in position.

Dimensions: Height of saw table, 2 feet 9½ inches. Covers floor space 3 feet 3 inches by 3 feet 6 inches. Size of saw table, 3 feet long by 18½ inches wide. Mandrel and shafting made of 1-inch cold rolled steel. Mandrel takes saws with ⅞-inch holes and up to 10 inches diameter.



No. 9M4212 Price, \$71.25

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HEAVY COMBINATION POWER

Rip, Cross Cut and Band Saw Machine

With Boring and Spoke Tenoning Attachments. Made With Babbitted Bearings, for Power Use Only

For Wagon Makers, Blacksmiths and Wheelwrights whose shops are equipped with power, this machine is especially desirable. Does heavy, medium or light work and will easily take care of any job that comes up in the ordinary shop. Saves a great deal of time and labor over old methods of ripping, cross cutting, band sawing, spoke tenoning and felloe boring, and will soon pay for itself in any shop. Any or all of the attachments may be used at once and three or four men can work on this machine at the same time without being in each other's way.

Circular Saw. Frame is made of extra heavy angle steel with overlapping joints, securely braced and bolted. Saw table also made of extra heavy angle steel with channel steel cross pieces. Saw table is hinged at back and can be raised, giving an adjustment of 3 inches in depth of cut. Machine is furnished with one rip and one cross cut guide. Rip guide adjustable for sawing any width up to 22 inches. Cross cut guide slides in grooves on either side of saw and can be adjusted to cut material at any angle up to 45 degrees. Saw table is bolted at bottom to heavy 2x10-inch dressed pine timbers, which greatly increase the steadiness of the machine and distribute the strain over more floor space. Saw table stands 2 feet 10 inches high and covers a floor space of 6 feet 1 inch by 2 feet. Saw table measures 3 feet in length and 22 1/4 inches wide. Price includes two circular saws made of best crucible saw steel, filed and set ready for use.

Band Saw. Wheels are 36 inches in diameter by 2 inches across face, and will cut to center of 72-inch circle. Wheels have wood rims with rubber bands on each for saw to run on. Tilting table is made of cast iron, planed true, and can be adjusted for sawing bevels. Table measures 14 1/4 x 17 1/2 inches but can be made larger with wood, provision being made for bolting same to iron. Table stands 38 inches from the floor, just the right height for the average man. Machine has two adjustable saw guides, one above, the other below the table. Upper guide can be raised to take material up to 10 inches. Upper wheel has tilting adjustment on top bar for leading saw with proper tension against guides. This adjustment can be made while saw is running. It also has spring and hand wheel for regulating the tension and lowering upper wheel to take shorter saws. Machine will take saws any length from 16 feet 6 inches to 17 feet 6 inches, and from 1/8 to 1 inch wide. The saw we furnish is made of best clock spring steel, brazed and sharpened ready for use.

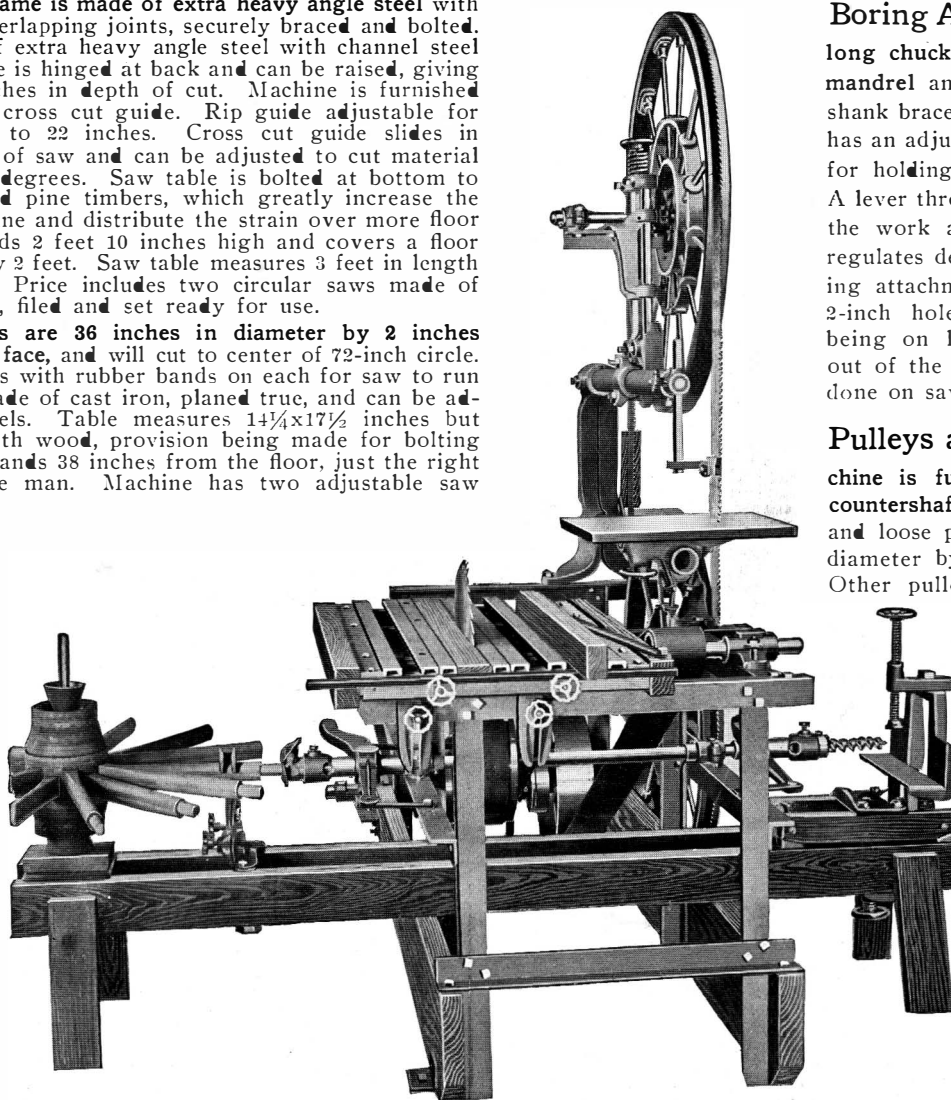
Spoke Tenoning Attachment. This attachment includes hollow auger, spoke holder and wheel holder. Hollow auger cuts 3/8, 1/2 or 1 1/8-inch tenons, but bushings to cut other size tenons can easily be made by any practical blacksmith. Wheel holder takes any size wheel, holding it securely while the spoke holder grasps the spoke firmly, but releases instantly when desired.

No. 9M4423 Heavy Combination Power Rip, Cross Cut and 36-Inch Swing Band Saw Machine, as illustrated, with boring and spoke tenoning attachments. Price includes countershaft, three first quality leather connecting belts, two saw guides, one 12-inch rip saw, one 10-inch cross cut saw and one 3/8-inch band saw 17 feet 6 inches long, but does not include driving belt, wooden bed nor auger bits. Shipping weight, about 800 pounds. Shipped from factory in Cincinnati, Ohio. Price..... **\$123.50**

No. 9M4424 Heavy Combination Power Rip, Cross Cut and 36-Inch Swing Band Saw Machine. This is exactly the same machine as our No. 9M4423 described above, but without the boring and spoke tenoning attachments. Price includes two first quality leather connecting belts, two saw guides, one 12-inch rip saw, one 10-inch cross cut saw, and one 3/8-inch band saw 17 feet 6 inches long, but does not include driving belt, wooden bed nor auger bits. Shipping weight, about 675 pounds. Shipped from factory in Cincinnati, Ohio. Price..... **\$98.00**

Boring Attachment consists of extra long chuck which fits on end of mandrel and takes regular square shank brace bits and drills. It also has an adjustable clamping support for holding material to be bored. A lever throws the bit to and from the work and an adjustable stop regulates depth of hole. This boring attachment will easily bore a 2-inch hole into hardwood, and being on lower shaft is entirely out of the way of all work being done on saw table.

Pulleys and Shafting. This machine is furnished complete with countershaft and pulleys. Tight and loose pulleys are 10 inches in diameter by 4 inches across face. Other pulleys are just the right size to speed the different saws and attachments correctly. Shafting is made of 1 1/2-inch cold rolled steel. Mandrel is turned down to take saws with 1-inch hole and will accommodate saws up to 14 inches in diameter. Bearings are 4 inches wide, babbitted with first quality anti-friction metal and will run without heating.



No. 9M4423 Price, \$123.50

Power. Power required to run this combination machine is from 2 to 3-horse power on ordinary work. On heavy work, or when several attachments are being used at once, 4-horse power will be required. Countershaft should be run about 500 revolutions per minute, which will run the different saws and attachments at the proper speed.

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HEAVY COMBINATION POWER RIP, CROSS CUT AND BAND SAW MACHINE

WITH 6-INCH JOINTER, LIGHT AND HEAVY BORING AND SPOKE TENONING ATTACHMENTS.

This Machine combines six very useful and necessary machines, all on one floor space and each ready for instant use without change. So arranged that five men can conveniently work at this machine at the same time, and none of them be in each other's way; or if only one man wants to operate machine he can start or stop that part of it he desires by throwing belt off or on. With this machine there is no lost motion nor waste of power and no time nor labor used up in changing or adjusting the machine. Each of the six parts stands ready to do its particular work just as if there were six separate machines, but, unlike six separate machines, there is necessary but one floor space, one countershaft, one drive belt, and but little more power used than one machine would require.

This Combination Machine is especially desirable for the larger size blacksmith, wheelwright, buggy or wagonmaker's shops, and will soon pay for itself in time and labor saved. It will do all the heavy cross cutting, ripping, band sawing, planing, beveling and squaring, cut all the special shapes, tenon spokes, bore bolsters, tongues and felloes, and can be used in numerous other ways that even a practical woodworker would hardly think of until he has seen and tried the machine.

The Frame of this machine is made of extra heavy angle steel. Has overlapping joints, strongly braced and put together with bolts which may be tightened to take up wear. At the bottom the angle steel legs are bolted to heavy 2x10-inch dressed pine timbers, which give more of a foundation to the machine, increase the steadiness and distribute the weight over more floor space. These timbers also make it easy to fasten machine down to the floor with the special floor clips which we furnish for that purpose. The pine timbers on this machine are 5 feet long and set on a floor space 24 inches wide.

Circular Saw. Saw table is made of extra heavy angle steel with smooth. Table stands 2 feet 10 inches from the floor and measures 22 1/2 inches wide by 3 feet long. The heavy angle steel on each side of table makes it easy to build on to and extend to any width desired for handling long work. Table is hinged in rear and can be raised or lowered to regulate depth of cut up to 3 inches. It is adjusted by wheel hand screws in front and can be locked in any position. The opening in saw table will permit the use of saws up to 14 inches in diameter, which will cut 5 inches deep, but we furnish 12-inch rip and 10-inch cross cut saws with machine, as these sizes seem best adapted for general use. The saws furnished with this machine are extra thin, highly tempered crucible steel. They have special shaped teeth for fast cutting and are filed and set ready for use.

Circular Saw Guides. We furnish one rip and one cross cut guide with each machine. Rip guide is adjustable to cut any width up to 22 inches. Cross cut guide works in grooves on either side of saw, is provided with an adjustable stop for cutting material to lengths and is adjustable to cut any angle up to 45 degrees.

Band Saw has a swing of 22 inches, cutting to center of a 44-inch circle. Both upper and lower wheels are 22 inches in diameter by 1 1/2 inches on face and have rubber bands for saws to run on. Upper wheel has tilting adjustment on top bar for leading saws with proper tension against guide, which is a very desirable feature, as it saves considerable wear and tear on saws and the adjustment can be properly made while saw is running. It also has a spring and hand wheel at top for regulating the tension on saws and for lowering upper wheel to accommodate shorter saws. Machine takes saws from 12 feet to 12 feet 6 inches long and from 1/4 to 3/4 inch wide. Band saw has two adjustable saw guides, one above, the other below the table. Upper guide can be raised to take material up to 6 1/2 inches thick. Band saw table is made of cast iron, planed perfectly true, and measures 14 1/4 x 17 1/2 inches, but it can easily be made larger with wood, provision being made for bolting same to iron. Band saw table stands 38 inches from the floor, just the right height for the average man. Band saw furnished with this machine is made of best tempered clock spring steel, filed, set and brazed and all ready for use.

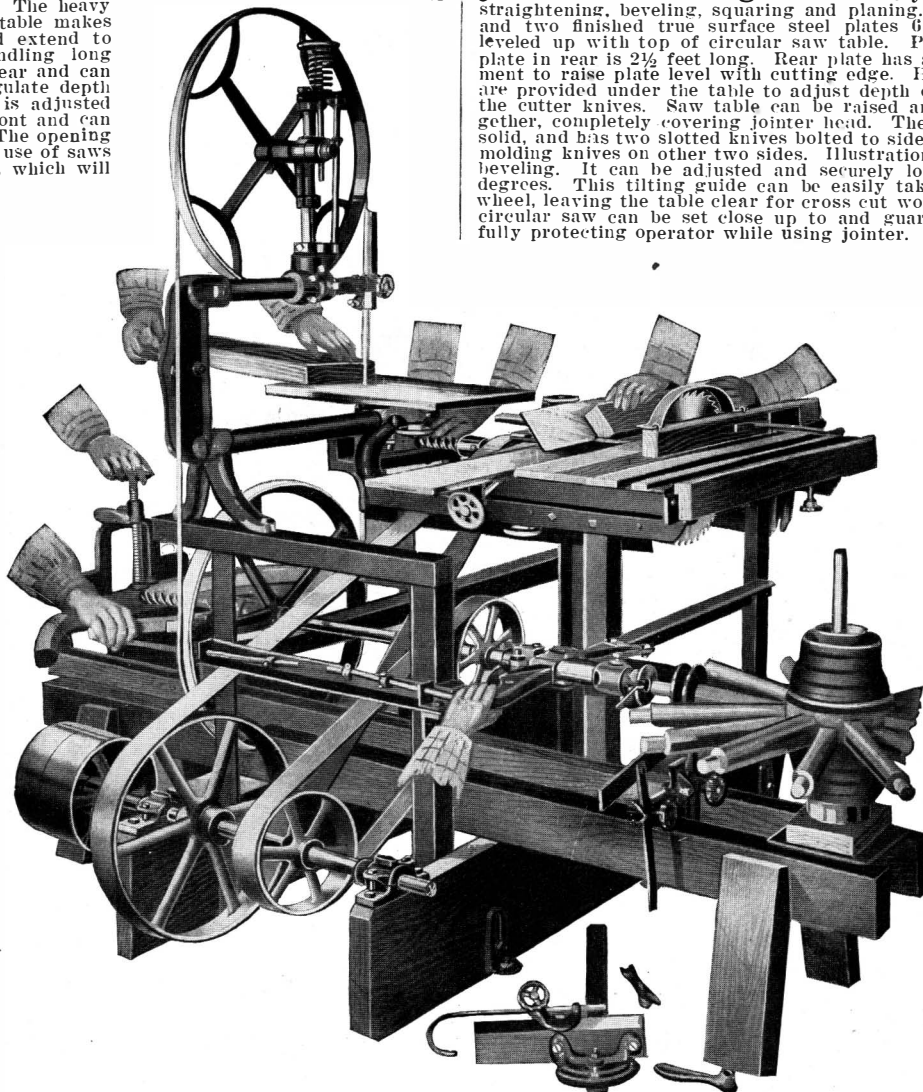
Shafting and Pulleys. Shafting is made of 1 3/16-inch cold rolled steel. Mandrel is turned down to take saws and cutter heads with 1-inch holes. Bearings are 4 inches wide and babbitted with first quality anti-friction metal. Tight and loose pulleys on countershaft are 10 inches in diameter by 4 inches across the face. The other pulleys are just the right size to speed the different saws and attachments at the proper number of revolutions. Countershaft should make 500 revolutions per minute. Our price includes first quality leather belt to connect countershaft to saw mandrel and lower shaft, but does not include drive belt for countershaft.

Jointer and Tilting Guide. The jointer on this machine is very useful and convenient for straightening, beveling, squaring and planing. It consists of jointer head and two finished true surface steel plates 6 inches wide, fitted to and leveled up with top of circular saw table. Plate in front is 2 feet long, plate in rear is 2 1/2 feet long. Rear plate has a hand wheel incline adjustment to raise plate level with cutting edge. Hand wheels having locknuts are provided under the table to adjust depth of cut without having to set the cutter knives. Saw table can be raised and jointer plates pushed together, completely covering jointer head. The jointer head is square and solid, and has two slotted knives bolted to sides, with provision for bolting molding knives on other two sides. Illustration shows tilting guide set for beveling. It can be adjusted and securely locked at any angle up to 45 degrees. This tilting guide can be easily taken off by loosening a hand wheel, leaving the table clear for cross cut work. Guide to the left of the circular saw can be set close up to and guard placed over circular saw, fully protecting operator while using jointer.

Spoke Tenoning Attachment consists of hollow auger, spoke holder and wheel holder. Hollow auger cuts 5/8, 3/4 and 1 1/8-inch tenons, but bushings to cut any other size tenons can easily be made by any blacksmith. Wheel holder takes any size wheel, holding it securely, and the spoke holder holds spoke firmly.

Light Boring Attachment consists of chuck attached to end of saw mandrel and an adjustable sliding support to hold material being bored. This boring attachment, being on saw mandrel, runs at great speed and for light and medium work it is unsurpassed. Chuck is bored to take 1/2-inch round shank bits and drills.

Heavy Boring Attachment consists of chuck attached to end of lower shaft and an adjustable clamping support to hold work being bored. This attachment runs at a comparatively low speed and will be found very useful for heavy boring and drilling. It has a long socket to slide on end of lower shaft and a lever to throw the bit to and from the work, also an adjustable stop for boring to depths. This boring attachment, being on lower shaft, is entirely out of the way of work being done on saw table and, being near



No. 9M4421 Price, \$117.75

the floor, heavy work can be handled to better advantage than if it were on a bench or table. Chuck holds ordinary square shank brace bits or drills. **Power.** This combination machine requires 2 to 3-horse power on ordinary work. On extra heavy work, or when several different attachments are in use at once, it requires about 4-horse power. Where power is paid for according to the amount used, as in the case of an electric motor, gas or gasoline engine, this economy of power will be appreciated.

No. 9M4421 Heavy Combination Power Rip, Cross Cut and 22-Inch Swing Band Saw Machine with 6-Inch Jointer, Light and Heavy Boring and Spoke Tenoning Attachments. Price includes machine complete, as illustrated and described, with two first quality leather connecting belts, one 12-inch rip saw, one 10-inch cross cut saw and one 3/8-inch band saw 12 feet long, but does not include driving belt, wooden bed or auger bits. Shipping weight, about 750 pounds. Shipped from factory in Cincinnati, Ohio. Price.....\$117.75

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COMBINATION RIP, CROSS CUT AND BAND SAW MACHINE WITH 6-INCH JOINTER AND BORING ATTACHMENT

WITH BABBITTED BEARINGS, FOR POWER USE ONLY.

This Combination Saw Machine greatly economizes in the use of floor space and power, saves shafting and belting and, at our low price, costs you no more than you would pay elsewhere for a machine of equal quality to do band sawing or circular work alone. Nowhere else will you find a machine that will do all the different kinds of work this one will, and that combines so many useful and ingenious time, labor and power saving improvements.

This Large Machine is especially desirable for carpenters, contractors, wagon builders, cabinet makers and woodworkers generally whose shops are equipped with power or who are thinking of installing same. It will do more and better work than two or three extra helpers using old methods, and if you want to meet competition and make a profit on your work you really cannot afford to get along without one of these machines.

The Frame of this machine is made of extra heavy angle steel. Has overlapping joints, strongly braced and put together with bolts which may be tightened to take up wear. At the bottom the angle steel legs are bolted to heavy 2x10-inch dressed pine timbers, which give more of a foundation to the machine, increase the steadiness and distribute the weight over more floor space. These timbers also make it easy to fasten machine down with the special floor clips which we furnish. The pine timbers on this machine are 5 feet long and rest on a floor space 24 inches wide.

Circular Saw. Saw table is made of extra heavy angle steel with channel steel cross pieces, all finished perfectly smooth. Table stands 2 feet 10 inches from floor and measures 22 $\frac{1}{4}$ inches wide by 3 feet long. The heavy angle steel on each side of table makes it easy to build on to and extend to any width desired for handling long work. Table is hinged in rear and can be raised or lowered to regulate depth of cut up to 3 inches. It is adjusted by wheel hand screws in front and can be locked in any position. The opening in saw table permits using saws up to 14 inches in diameter, which will cut 5 inches deep, but we furnish 12-inch rip and 10-inch cross cut saws with machine, as these sizes seem best adapted for general use. The saws furnished are extra thin, highly tempered crucible steel. They have special shaped teeth for fast cutting and are filed and set ready for use.

Circular Saw Guides. We furnish one rip and one cross cut guide with each machine. Rip guide is adjustable to cut any width up to 22 inches. Cross cut guide works in grooves on either side of saw, is provided with an adjustable stop for cutting material to lengths and is adjustable to cut any angle up to 45 degrees.

Band Saw has a swing of 22 inches, cutting to center of a 44-inch circle. Wheels are 22 inches in diameter by 1 $\frac{1}{2}$ inches on face and have rubber bands for saws to run on. Upper wheel has tilting adjustment on top bar for leading saws with proper tension against guide, which is a very desirable feature, as it saves considerable wear and tear on saws and the adjustment can be properly made while saw is running. It also has a spring and hand wheel at top for regulating the tension on saws and for lowering upper wheel to accommodate shorter saws. Machine takes saws from 12 feet to 12 feet 6 inches long and from $\frac{1}{8}$ to $\frac{3}{4}$ inch wide. Band saw has two adjustable saw guides, one above, the other below the table. Upper guide can be raised to

take material up to 6 $\frac{1}{2}$ inches thick. Band saw table is made of cast iron, planed perfectly true, and measures 14 $\frac{1}{4}$ x17 $\frac{1}{2}$ inches, but it can easily be made larger with wood, provision being made for bolting same to iron. Band saw table stands 38 inches from the floor, just the right height for the average man. Band saw furnished with this machine is made of best tempered clock spring steel, filed, set and brazed and all ready for use.

Shafting and Pulleys.

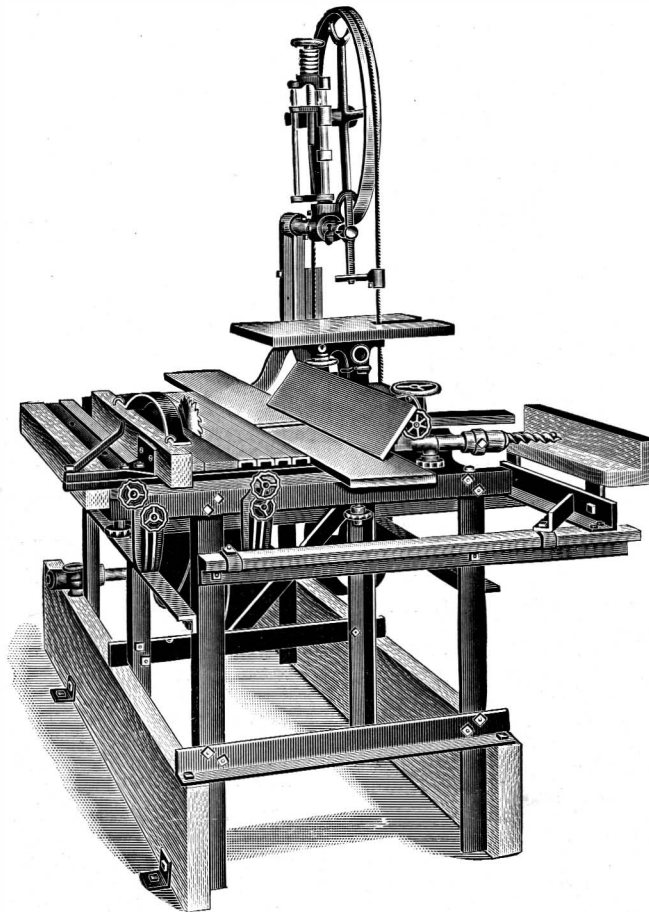
Shafting used in this machine is made of 1 $\frac{1}{2}$ -inch cold rolled steel. Mandrel is turned down to take saws and cutter heads with 1-inch holes. Bearings are 4 inches wide and babbitted with first quality anti-friction metal. Tight and loose pulleys on countershaft are 10 inches in diameter by 4 inches across the face. The other pulleys are just the right size to speed the different saws and attachments correctly. Countershaft should make 500 revolutions per minute. Our price includes first quality leather belting to connect countershaft to saw mandrel, but does not include drive belt for countershaft.

The Jointer is of great value for beveling, squaring or planing up to 6 inches wide. Tilting guide shown at right of circular saw holds material square or at an angle, and the adjustments for different angles are quickly and easily made. Jointer plates are made of steel, 6 inches wide, planed perfectly true. Rear plate is 2 $\frac{1}{2}$ feet long, front plate 2 feet long. Both plates furnished with hand wheels for raising or lowering and when not in use table can be slightly raised and plates can be pushed together, effectually protecting fingers of operator from jointer knives beneath. Jointer has a four-sided solid head with which we furnish two crucible steel 6-inch

slotted jointer knives. While using jointer, guard on rip guide can be raised to protect operator from circular saws.

Boring Attachment consists of chuck attached to end of saw mandrel, bored to take $\frac{1}{2}$ -inch round shank bits or drills, and an adjustable sliding support to hold material being bored. This boring attachment does rapid, smooth and accurate work and greatly increases the value of this machine in any shop. Our price does not include boring bits. For bits see page 39.

Power. This combination machine requires 2 to 3-horse power on ordinary work. On extra heavy work it requires about 4-horse power. Where power is paid for according to the amount used, as in the case of an electric motor, gas or gasoline engine, this economy of power will be appreciated.



No. 9M4419 Price, \$98.00

No. 9M4419 Heavy Power Combination Rip, Cross Cut and 22-Inch Swing Band Saw Machine with 6-inch jointer and boring attachment. Price includes countershaft, two first quality leather connecting belts, one 12-inch rip saw, one 10-inch cross cut saw and one $\frac{3}{8}$ -inch band saw 12 feet long, but does not include driving belt or boring bits. Shipping weight, about 650 pounds. Shipped from factory in Cincinnati, Ohio. Price.....

\$98.00

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COMBINATION RIP, CROSS CUT AND BAND SAW MACHINE

WITH BABBITTED BEARINGS. FOR POWER USE ONLY

A Practical and Convenient Machine for shops equipped with power. Band saw sets to the rear of circular saw table, entirely out of the way of cross cutting or ripping. Two men can work on this machine at same time without interfering with each other. This combination machine requires but one floor space and but little more power than a machine doing only one kind of work. When band saw or circular saw only is required, one belt can be easily removed and only that part of machine which you are using will run, saving power, wear on belting, etc.

This Combination Saw Machine is the same as our No. 9M4419 on the preceding page, except it is not furnished with jointer and boring attachment. The frame, saw table, guides, band saw, etc., are exactly the same as fully described under No. 9M4419 on preceding page.

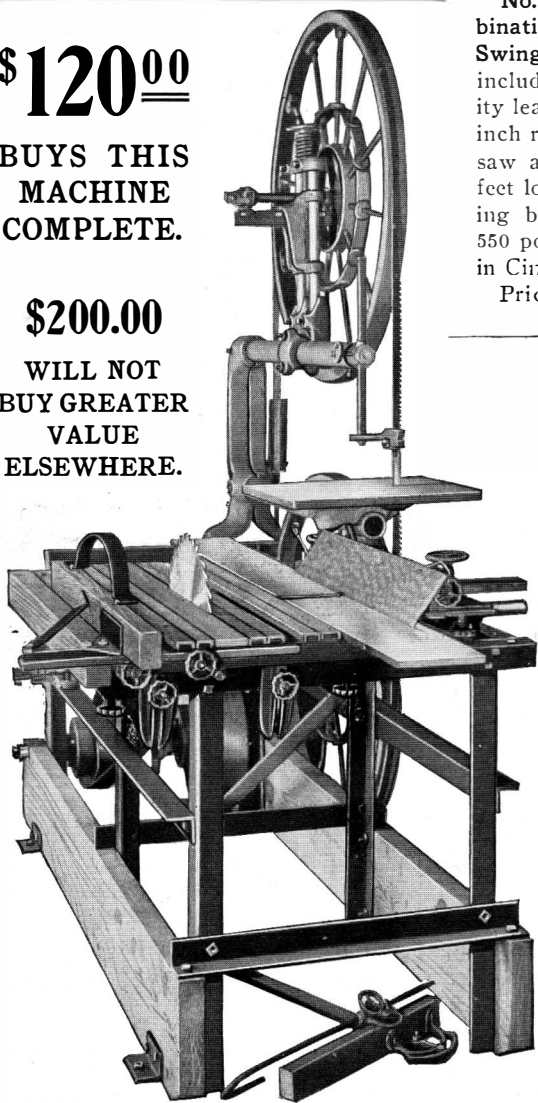
Power. Power required to run this machine on average work, from 2 to 3-horse power; on extra heavy work or when both circular and band saw are run at once, about 4-horse power.

\$120⁰⁰

**BUYS THIS
MACHINE
COMPLETE.**

\$200.00

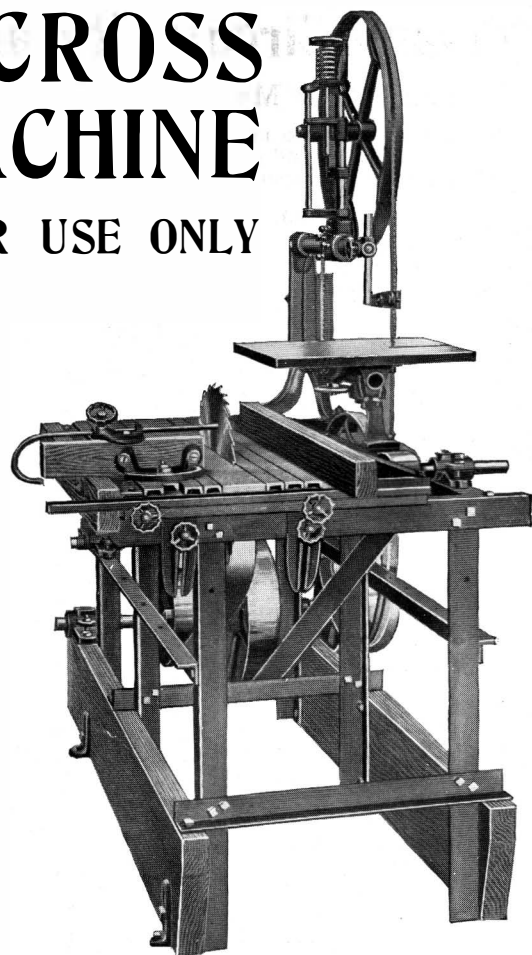
**WILL NOT
BUY GREATER
VALUE
ELSEWHERE.**



No. 9M4425 Price, \$120.00

No. 9M4406 Heavy Power Combination Rip, Cross Cut and 22-inch Swing Band Saw Machine. Price includes countershaft, two first quality leather connection belts, one 12-inch rip saw, one 10-inch cross cut saw and one 3/8-inch band saw 12 feet long, but does not include driving belt. Shipping weight, about 550 pounds. Shipped from factory in Cincinnati, Ohio.

Price **\$76.00**



No. 9M4406 Price, \$76.00

COMBINATION RIP, CROSS CUT AND 36-INCH SWING BAND SAW MACHINE WITH 6-INCH JOINTER

Made with Babbitted Bearings, for Power Use Only.

Combines Three of the Most Useful and Necessary Machines used in a wood working shop, each ready for instant use. Band saw is extra size, cutting to the center of a 72-inch circle, and amply large enough to do any work that is likely to come up in even the largest jobbing shops. Two men can work on this machine at once without being in each other's way, one using the band saw, the other using the jointer or circular saw. This combination machine practically takes the place of three different machines, but uses no more floor space and but little more power than one of them ordinarily requires.

This Combination Saw Machine is the same as our No. 9M4419 on the preceding page, except has a 36-inch swing band saw instead of a 22-inch, and is not furnished with boring attachment. Frame, saw table, guides, band saw, shafting, pulleys, etc., are exactly the same as fully described under our No. 9M4419 on preceding page, except band saw wheels are 36 inches in diameter instead of 22 inches and upper saw guide raises to take material up to 10 inches thick instead of 6 1/2 inches, as on the 22-inch swing saw.

Power. Power required to run this machine on average work, from 2 to 3-horse power; on extra heavy work or when two different kinds of work are being done at once, about 4-horse power.

No. 9M4425 Heavy Power Combination Rip, Cross Cut and 36-Inch Swing Band Saw Machine with 6-Inch Jointer. Price includes countershaft, two first quality leather connecting belts, one 12-inch rip saw, one 10-inch cross cut saw and one 3/8-inch band saw 17 feet 6 inches long, but does not include driving belt. Shipping weight, about 850 pounds. Shipped from factory in Cincinnati, Ohio.

Price **\$120.00**

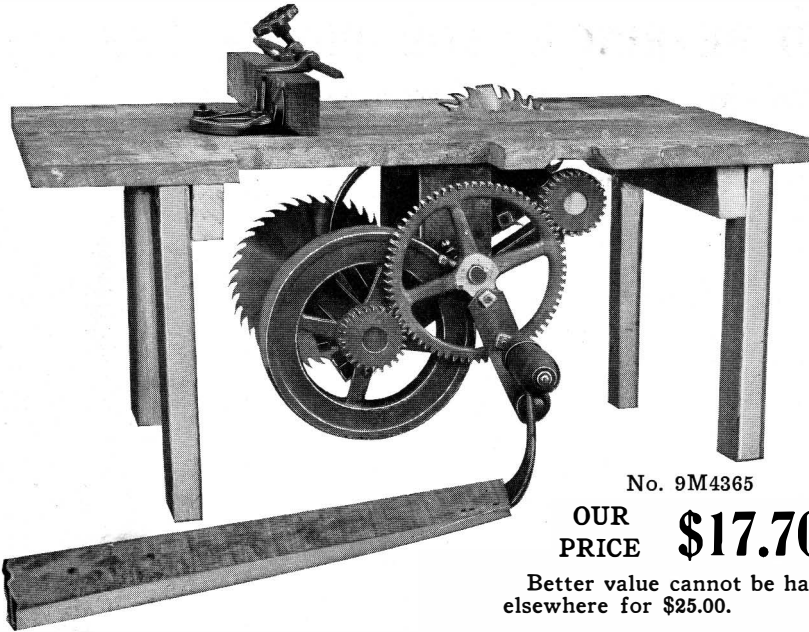
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Portable Circular Rip and Cross Cut Saw for Foot or Hand Power

A Complete Saw Machine for Carpenters, contractors, builders and small shop owners. Light enough to pack in a tool chest and be taken around from one job to another. Designed to attach to work bench and will do more sawing than three men with hand saws. This machine is easy to operate, does fast, accurate work, saves time and labor and pays for itself in a very short while. It is one of the handiest and most convenient machines ever designed, and no progressive carpenter or contractor would be without it if he could use it a week.

Frame can be tilted so that either saw comes above bench ready for use, also to adjust depth of cut. Both saws can easily be dropped below surface to clear bench for other work. Machine can quickly be attached to bench or removed when through using and, by taking off saws, packed in small space in tool chest. Illustration shows machine fitted with our No. 9M4260 groover (see illustration and full description on page 41).

This Machine Can Be Used nicely for dadoing and grooving if bench is made for guide to slide in. Larger saws than 8-inch may be used, but as an 8-inch saw cuts 2 inches



No. 9M4365

OUR
PRICE **\$17.70**

Better value cannot be had elsewhere for \$25.00.

deep, it will be found large enough for all practical use. Size, with handle and saws removed, 15x16½ inches, and weighs only about 40 pounds. Foot treadle, as shown in illustration, consists of a board attached to crank with a leather strap and can be easily made by any mechanic.

No. 9M4365 Portable Circular Saw, complete with one 8-inch cross cut saw, one 8-inch rip saw, one groover 7 inches in diameter, metal parts for rip and cross cut guides, but without temporary table, foot treadle or any wood-work shown except handle. Shipping weight, about 42 pounds. Shipped direct from factory in Cincinnati, Ohio. Price.....**\$17.70**

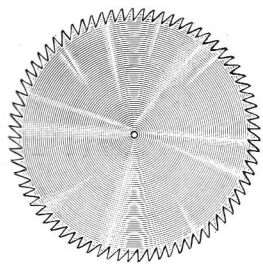
No. 9M4366 Portable Circular Saw. Same as No. 9M4365, except without 7-inch groover. Shipping weight, about 40 pounds. Shipped direct from factory in Cincinnati, Ohio. Price.....**\$14.15**

Supplies for Our Wood Working Machinery

CARRIED IN STOCK AT OUR WOOD WORKING MACHINERY FACTORY IN CINCINNATI, OHIO, AND CAN BE SHIPPED PROMPTLY FROM THERE.

Include Such Supplies as you will need with your order for machines, as the freight charges on the supplies will be almost nothing if included in the same shipment with a heavy machine.

We Quote Below only the supplies and in the sizes usually required for our wood working machinery. For other sizes of belting saws, etc., see pages 43 to 49 of catalog. Please note, however, we carry only the goods and sizes quoted below at factory in Cincinnati; other supplies or sizes will be shipped from our Chicago store.



CIRCULAR CROSS CUT AND RIP SAWS.

Special saws, made with extreme care and designed for use with the saw machines shown in this book. These saws are made much thinner and will cut much faster than regular circular saws and should not be used on heavy power machines, or at extra high speed. Made of best crucible saw steel, properly tempered. Teeth are shaped to cut easily and fast. All saws sent out set and filed

ready for use. These saws shipped only from our wood working machinery factory in Cincinnati, Ohio.

No. 9M4540 Cross Cut Saws with ¾ or 1-inch arbor holes. State which.

Diameter, inches.....	6	8	10	12	14
Gauge thickness.....	20	20	17	16	16
Price, each.....	\$1.10	\$1.50	\$2.10	\$2.70	\$3.30

No. 9M4542 Rip Saws, with ¾ or 1-inch arbor holes. State which.

Diameter, inches.....	6	8	10	12	14
Gauge thickness.....	20	20	17	16	16
Price, each.....	\$1.00	\$1.40	\$2.00	\$2.60	\$3.20

BORING MACHINE AUGER BITS.

With ½-inch round shanks, for use with our boring attachments. Made of highest grade tool steel, are heavy and strong, open in the twist, cut smooth and fast and will stand severe service. Shipped only from our wood working machine factory in Cincinnati, Ohio.

No. 9M4556 Boring Machine Auger Bits with ½-inch round shanks.

Size, inches.....	¼	¾	½	⅝	¾	⅞	1	1¼	1½	1¾	2
Price, each.....	25c	30c	35c	40c	47c	50c	53c	60c	65c	72c	80c



BRAZED BAND SAW BLADES.

Special band saw blades for use on the saw machines shown in this book. Made extra thin, set, filed and brazed, and sent out ready for use. The ¼ and ⅜-inch sizes are best for general work. The ¾ and 1-inch sizes should be used only for straight line sawing on power machines. Order 12-foot saws for 20 and 22-inch, and 17-foot 6-inch saws for 36-inch swing band saw machines. These saws shipped only from our wood working machinery factory in Cincinnati, Ohio.

No. 9M4548 Band Saw Blades. State width and length.

Width, inches.....	⅛	¼	⅜	½	¾	1
Length, 12 feet. Price..	\$0.80	\$0.95	\$1.15	\$1.35	\$1.55	\$1.75
Length, 17 ft. 6 in. Price..	1.10	1.30	1.55	1.80	2.05	2.30



LEATHER BELTING.

Made of first quality short lap oak tanned leather. It is tough and strong, will give good service and stand the wear. Shipped only from our wood working machinery factory in Cincinnati, Ohio.

No. 9M4558 Oak Tanned Leather Belting.
Width, 3 inches. Price, per foot.....18c
Width, 4 inches. Price, per foot.....24c

OTHER SIZES AND KINDS OF BELTING, SAWS, ETC., ON PAGES 43 TO 49.

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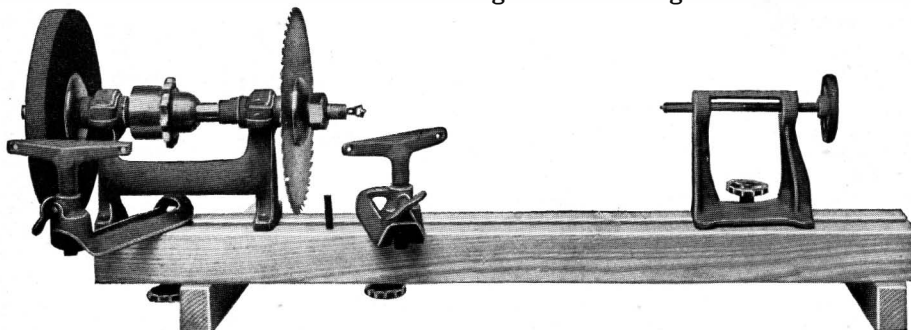
ATTACHMENTS TO BE USED WITH OUR SAW MACHINES

CARRIED IN STOCK AT OUR WOOD WORKING MACHINERY FACTORY IN CINCINNATI, OHIO, AND CAN BE SHIPPED PROMPTLY FROM THERE.

If You Need Any of These Attachments, order them when you order your machine, as the freight charges on the attachments will be almost nothing when shipped with a heavy machine. These Various Attachments greatly increase the usefulness of your machine. If you already have one of our machines and need any of these attachments, send us your order for those you want. We guarantee the attachments to fit your machine and to give good service.

BALL BEARING LATHE AND EMERY WHEEL ATTACHMENTS

This Lathe Attachment Can Be Used on Any of Our Circular Saw Frames or Machines, and as a Separate Machine for Belt Power It Is the Lightest Running Machine of Its Kind Made.



Ball Bearings have proven a wonderful improvement on lathe and emery wheel spindles. They save about half the power, admit of very close adjustment, stand a high speed under heavy pressure and will not heat. Our ball bearings have two complete circles of balls in each bearing. These balls are made of best die steel, hardened and tempered. They run in hardened steel races and outlast most of the ball bearings ordinarily used two to one.

The Cross Pieces rest on top of the saw table and the lathe is driven with belt from drive wheel or link belt from sprocket wheel, thus giving two different speeds. Lathe swings timber up to 11 inches in diameter and bed can be made as long as required. End of spindle is threaded to receive a face plate (which can easily be made of hardwood) and has a taper socket for spur center. Both ends of spindle are fitted up with collars and nuts for emery wheels or circular saws. Bed, with head and tail stock is quickly taken out of the way and requires but little fitting to attach to machine.

No. 9M4230 Lathe Attachment. Iron parts only, with 1-inch ball bearing spindle, spur center and two adjustable chisel rests, but without circular saw, emery wheel, link belt or wood bed. Shipped only from factory in Cincinnati, Ohio. Weight, **\$7.20** about 50 pounds. Price.....

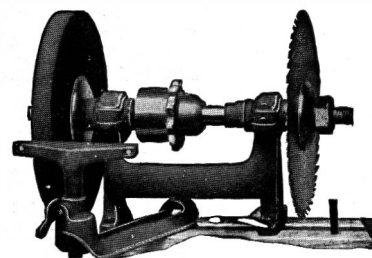
No. 9M4239 Sprocket Wheel and Link Belt to connect lathe attachment with saw machine. Sprocket wheel 11 inches in diameter, link belt 44 inches long. Weight, about 6 pounds. Shipped only from factory in Cincinnati, Ohio. Price..... **1.00**

No. 9M4231 Boring Chuck to use with Lathe Attachment. Chuck threaded to screw on end of spindle, and holds ordinary square shank brace bits. Weight, about 2 pounds. Shipped only from factory in Cincinnati, Ohio. Price, without bits..... **\$1.10**

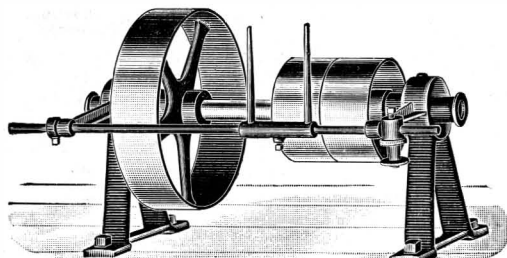
EMERY WHEEL STAND

Headstock of attachment described above makes a practical emery wheel stand. Being equipped with ball bearings, this stand will run at a high speed, making the emery wheels cut very fast. This stand will run two emery wheels 10 inches in diameter by 1½ inches thick, or one emery wheel and circular saw, as illustrated. The ball bearing journals save about half the power, stand a very high speed and never heat. Link belt on sprocket wheel gives a strong, steady pull and never slips.

No. 9M4240 Emery Wheel Stand only, without emery wheel, circular saw or link belt. Weight, about 40 pounds. Shipped only from factory in Cincinnati, Ohio. Price... **\$5.75**



COUNTERSHAFT and BELT SHIFTER



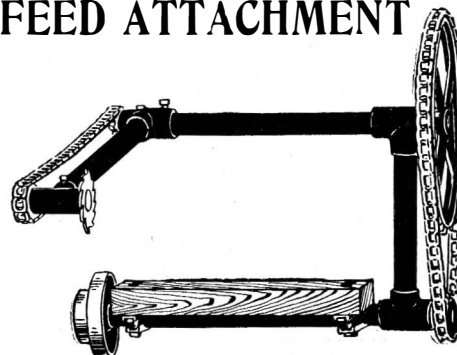
Suitable for any of our belt power saw machines and especially desirable for those machines that are not furnished with countershafts mounted on the wood bed of the machine. Has self adjusting bearings, tight and loose pulleys 8 inches in diameter with 3-inch face and driving pulley 12 inches in diameter with 3-inch face. Can be attached to floor, side wall or ceiling. Shipped only from factory in Cincinnati, Ohio. Shipping weight, about 30 pounds.

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No. 9M4316 Countershaft and Belt Shifter.

Price, complete as shown..... **\$6.40**

SELF FEED ATTACHMENT



May be used on any of our circular saw machines. Leaves operator free to use both hand and foot power after board is started in. Spur wheel is set exactly in front of saw and draws lumber through. Saw cuts out mark that spur wheel makes. This self feed attachment is quickly and easily attached, is adjustable for cutting any thickness timber, can be set to feed at any desired speed, and may be swung underneath table out of the way when table is to be cleared for cross cut work. Takes material up to 12 inches wide. Shipped only from factory in Cincinnati, Ohio. Shipping weight, about 40 pounds.

No. 9M4255 Self Feed Attachment. Price, complete..... **\$7.15**

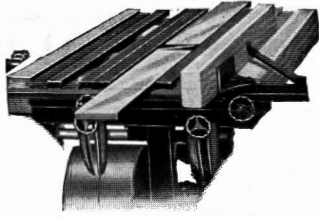
ATTACHMENTS TO BE USED WITH OUR SAW MACHINES

Carried in stock at our wood working machinery factory in Cincinnati, Ohio, and can be shipped promptly from there.

If you need any of these attachments, order them when you order your machine, as the freight charges on the attachments will be almost nothing when shipped with a heavy machine.

One or more of these attachments may be of great use to you. If you have special work to do—jointing, tenoning, chamfering, dadoing, etc.—it will soon pay for itself in time and labor saved and be a constant source of profit to you for years to come.

JOINTER ATTACHMENTS.



Can be applied to any of our circular saw machines equipped for power, and are used for jointing, chamfering, beveling, squaring an edge, etc. Attachment consists of jointer head, two adjustable cold rolled steel plates and the necessary lock nut set screws, etc., for raising and lowering the plates. These plates are furnished absolutely true. Back plate can be raised equal to depth of cut made by the knives, so the material being worked always has a support to pass on and is thus kept level. It is impractical to use this attachment at a lower speed than 2,500 revolutions per minute, and it cannot be successfully operated on foot and hand power machines. Jointer heads furnished with $\frac{7}{8}$ or 1-inch mandrel holes. State which you want.

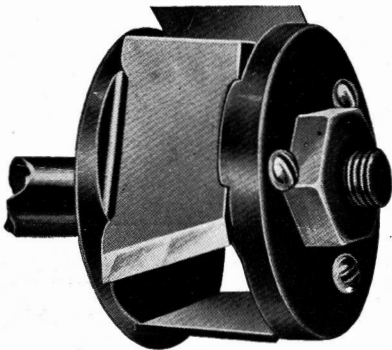
No. 9M4216 Jointer Attachment, cutting $1\frac{3}{4}$ inches wide. Plates, 2 inches wide by 2 feet long. Shipped from factory in Cincinnati, Ohio. Shipping weight, about 33 pounds.

Price, complete with screws.....\$4.65

No. 9M4217 Jointer Attachment, cutting 3 inches wide. Plates, 3 inches wide by 2 feet long. Shipped from factory in Cincinnati, Ohio. Shipping weight, about 39 pounds.

Price, complete with screws.....\$7.10

CUTTER HEADS FOR JOINTING, TENONING, MOLDING, BEADING, ETC.



Can be fitted on saw mandrel of any of our circular saw machines. Bits are securely held in place and may be set either slanting or at right angles. Spur or side cutters may be used on both sides. With one side cutter and straight bits it makes a fine tenoning head, while with two side cutters it may be used for gaining. Adjustable to cut different widths by using the desired width bits from $\frac{1}{2}$ inch to 3 inches wide. We furnish heads with straight bits only, but the bits may be filed or ground to make any shape molding desired. Head is 4 inches in diameter, but can be adjusted to cut up to $\frac{3}{4}$ inch deep, which makes cutting head circle up to $5\frac{1}{2}$ inches. Heads bored to fit $\frac{7}{8}$ or 1-inch mandrels at prices below; bored to fit any other size mandrel up to 1.3-16 inches at an extra charge of 60 cents each. Be sure to state size of mandrel hole desired. These jointer heads should run 2,500 to 3,000 revolutions per minute, and will not do satisfactory work if run much slower. Cutter heads and bits shipped only from factory in Cincinnati, Ohio. Weight of head complete, about 3 pounds.

No. 9M4275 Head, with $1\frac{3}{4}$ -inch straight bits. Price...\$1.80

No. 9M4276 Head, with 3-inch straight bits. Price.... 2.15

No. 9M4277 Side Cutters. Price, each..... .30

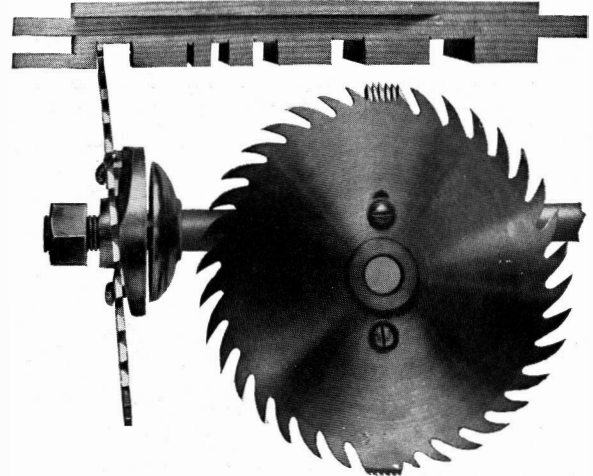
No. 9M4279 Extra Bits. Forged of first quality steel, but not finished to a cutting edge.

Width, inches..... $\frac{1}{2}$ $\frac{7}{8}$ 1 1 $\frac{1}{2}$ 1 $\frac{3}{4}$ 2 $\frac{1}{2}$ 3
Price, per set of 3... 43c 44c 45c 46c 47c 70c 75c

When a number of different shaped molding bits are needed, it is best to get a number of heads and have them fitted up with the different shaped bits. We furnish heads in sets of three, with blank bits up to $1\frac{3}{4}$ inches wide, forged but not finished to a cutting edge.

No. 9M4278 Cutter Heads, as above. Price, per set of three.....\$3.65

ADJUSTABLE DADO AND GROOVING HEADS.



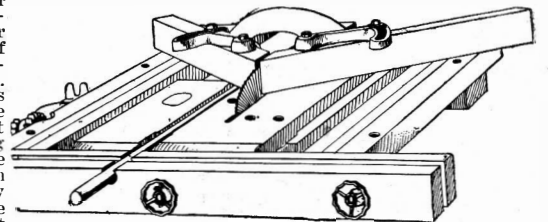
May be used on any of our circular saw machines. Cuts with the grain or across the grain. Provided with side cutters, opposed to each other, so that one set cuts one side of groove and the other set the other side. The fronts of the teeth between the side cutters are beveled, half on one side and half on the other. The points strike with a shearing cut, which takes less power and also does away with the tendency to glance off, follow the grain or throw the wood to one side. It is perfectly safe to run at high speed, as it is a solid disc with no particular strain on the head. Instead of the saw fitting the shaft, it is bored to fit a standard size hub or bushing, which, where the saw rests, is rounded like a ball, allowing saw to tilt and still maintain a firm bearing without lost motion. This head can be bored out to fit any mandrel $1\frac{1}{2}$ inches or smaller and can be used on any machine. Saws are quickly and easily adjusted to cut to the fractional part of an inch. Seven-inch saws cut from $\frac{1}{8}$ to $1\frac{1}{4}$ inches wide, $1\frac{1}{2}$ inches deep; 9-inch saws cut from 3-16 to $1\frac{3}{4}$ inches wide, $2\frac{1}{2}$ inches deep. On long mandrels a number of different saws may be run side by side, to make a wide cut or series of cuts, each as wide and as far apart as may be desired. Furnished bored to fit $\frac{7}{8}$ or 1-inch mandrel without extra charge. Be sure to state which is wanted. These grooving heads are shipped only from our wood working machinery factory in Cincinnati, Ohio. Shipping weight, about 8 pounds.

No. 9M4260 Grooving Head, with 7-inch saw. Price...\$3.60

No. 9M4261 Grooving Head, with 9-inch saw. Price... 4.65

EXTRA. For boring to fit mandrel other than $\frac{7}{8}$ or 1-inch, any size up to $1\frac{1}{2}$ inches. Price, each..... .60

MITER GUIDE ATTACHMENT.



Can be used on any of our circular saw machines. Especially valuable for cutting both ends of joint without changing angle of guide. This attachment is really a double guide, set at right angles for mitering and is adjustable for making hexagon joints, etc. Very useful for picture frame and cabinet makers, as it saves time and insures accuracy in cutting joints. Shipped only from factory in Cincinnati, Ohio. Shipping weight, about 15 pounds.

No. 9M4250 Miter Guide Attachment. Price, complete.....\$2.90

TILTING GUIDE ATTACHMENT.



Can be used on any of our saw machines equipped with a rip guide. It is to be connected to the rip guide with a screw in each end and one on top. By means of the hand wheel the top may be tilted down for sawing or jointing a bevel. Can also be used for regular square sawing. Shipped from factory in Cincinnati, Ohio.

Shipping weight, about 15 pounds.

No. 9M4251 Tilting Guide Attachment.

Price, complete.....\$1.85

**ALL GOODS ON THIS PAGE
SHIPPED DIRECT FROM FACTORY
IN
CINCINNATI, OHIO**

WOOD TURNERS' LATHE SETS

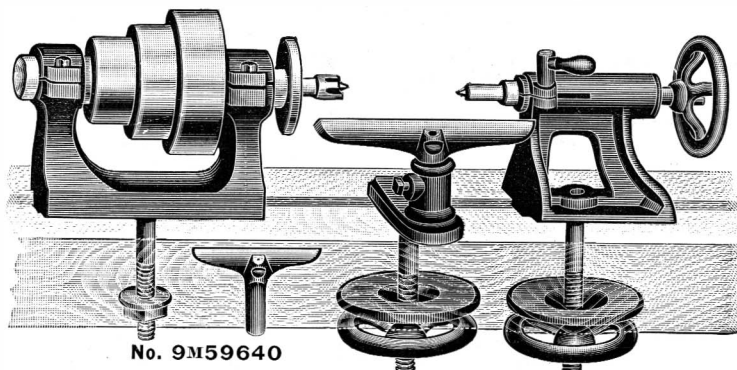
COUNTERSHAFTS AND FOOT WHEELS

Full size, full weight, standard quality goods; the same high class lathe sets that usually sell for one-fourth to one-third more than we ask. All these goods are made of first quality gray iron, with steel shafts, long bearings and are of such high quality we take pleasure in recommending them to anyone who needs machinery of this kind.

These Wood Turners' Lathe Sets are largely used in furniture factories, novelty works and wood working shops generally. They are especially adapted for making chair stock, columns, newels and balusters for porches and stairs, sink legs, baseball bats, or any kind of ordinary wood turning.

6-Inch to 13-Inch Swing Wood Turners' Lathe Sets and Countershafts to Match

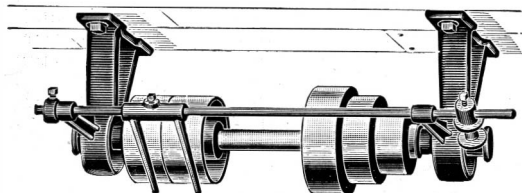
These Lathe Sets are strongly made throughout, heavy enough for everyday shop use and guaranteed to turn out first class work. If you need a good wood turners' lathe, a machine you can rely on to do the highest class work, order one of these and get the best. We had these lathe sets especially designed and built to supply the demand for well made, low priced machines that are practical and durable. They are correctly proportioned and the working parts are accurately made and carefully fitted. Nos. 3 and 4 have babbitted bearings; Nos. 1 and 2 have cast iron bearings. All have steel head spindles and No. 2 Morse taper centers. Cones are carefully balanced, turned on inside as well as outside. Lathe set consists of metal parts only which are intended to be used on wooden bed, as illustrated. Our price does not include the wood bed. These goods are shipped from our Chicago store and may be included with other goods.



No. 9M59640

No. 9M59640 Lathe Set complete.

Size No.	1	2	3	4
Swing, inches	6	8	11	13
Speeds in cones	2	2	3	4
Diameter, spindle, inch	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Width belt, inches	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Weight, boxed, about, pounds	20	36	83	123
Price	\$7.48	\$9.98	\$15.88	\$25.48

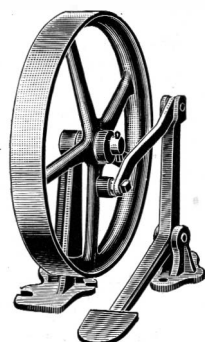


No. 9M59642

The Countershafts to use with above lathe sets are accurately made and carefully fitted. They are strong and durable and will stand an unlimited amount of wear. Castings are good quality gray iron, well finished. Shafts are best cold rolled steel. Pulleys match pulleys on same size lathe sets.

No. 9M59642	Size	No. 1	No. 2	No. 3	No. 4
Weight, about, pounds		27	33	48	50
Price		\$3.88	\$4.92	\$7.12	\$8.41

6-Inch Swing Combination Wood Turners' Lathe Set and Grinder With Countershaft and Foot Wheel to Match



No. 9M59656
FOOT WHEEL

This Combination Lathe Set and Grinder is an excellent machine for light and medium work. It is very durable and as strong as any lathe of its capacity offered by anyone. The working parts are accurately made and carefully fitted. These sets are priced very low and are good value, as they do excellent work and are not easily gotten out of order.

This Set consists of headstock with flanges for holding emery wheel, tailstock with adjustable sleeve, spur center, cup center, tool rest and socket, hand nuts, washers and oil cups. Spindle is steel, $\frac{5}{8}$ -inch diameter in bearing, $\frac{1}{2}$ -inch between flanges, with provision to take up wear. Bearings are $1\frac{1}{2}$ inches long. Takes emery wheel $6 \times \frac{3}{4}$ inch with $\frac{1}{2}$ -inch hole. Lathe swings 7 inches. Belt pulley for $1\frac{1}{4}$ -inch belt. Set consists of metal parts only. Wood bed not included. Weight, about 12 pounds. Shipped from our Chicago store and may be included with other goods.

No. 9M59650 Price.....\$4.48

FOOT WHEEL

Especially designed for driving above combination lathe set, but is well adapted for running any other light machinery. Size wheel, $18\frac{1}{2}$ inches with 2-inch face. Weight, about 45 pounds. Shipped from our Chicago store.

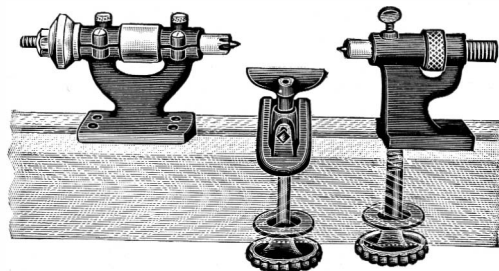
No. 9M59656 Price.....\$3.38

ALL GOODS ON THIS PAGE
SHIPPED FROM OUR
CHICAGO STORE

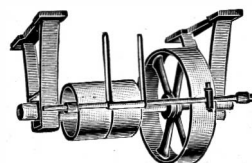
COUNTERSHAFT FOR ABOVE SET

With $8 \times 1\frac{3}{4}$ -inch drive pulley, $3\frac{3}{4} \times 1\frac{3}{4}$ -inch tight and loose pulleys and $\frac{3}{8}$ -inch shaft. Weight, about 21 pounds. Shipped from our Chicago store.

No. 9M59620 Price.....\$2.78



No. 9M59650



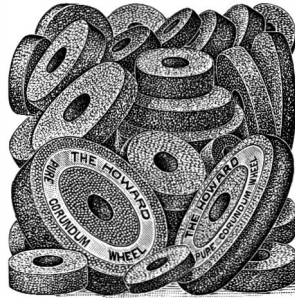
No. 9M59620
COUNTERSHAFT

HOWARD CORUNDUM WHEELS MADE IN THE LEADING GRADES AND SIZES TO SUIT ALL KINDS OF GRINDING

Corundum is the hardest and sharpest substance known except the diamond. It is not only extremely hard, but very tough and breaks with sharp jagged edges, making it especially suited for fast grinding.

Howard grinding wheels are made of pure corundum of the very best grade, unadulterated with flint, garnet, emery or other inferior substances. One Howard Corundum Wheel will do as much work as two emery wheels and do it faster and better. Howard Corundum Wheels outcut and outlast any grinding wheels made, and when the amount of work done is considered they are the cheapest wheels to buy. We sell thousands of Howard Corundum Wheels every year and do not know of a single dissatisfied customer. Our corundum wheel business has more than doubled in the last two years and is now one of the largest in the United States. We sell a great many shops and factories all the grinding wheels they use and repeated orders from satisfied customers afford the best evidence that Howard Corundum Wheels give satisfaction.

HOWARD CORUNDUM WHEELS are made of different sizes of grain and degrees of hardness to suit all classes of grinding. Tell us in your order the kind of work you want



done, whether for iron or steel, surface or edge work and if for wet or dry grinding and we will send a wheel to suit your particular work.

THE PROPER SPEED OF CORUNDUM WHEELS is for the face to travel about a mile a minute. Below we give table showing number of revolutions necessary to make the face of wheel reach this speed.

TABLE showing the number of revolutions per minute at which Howard Corundum Wheels give best results.

Diam. Wheel, in.	2	3	4	5	6	8
Rev. per minute	10,000	7,000	5,300	4,200	3,500	2,600
Diam. Wheel, in.	10	12	14	16	18	
Rev. per minute	2,100	1,750	1,500	1,300	1,150	

NOTE—No matter what purpose you want a grinding wheel for, we can furnish it. If you require a different size or shape, or a special wheel of any kind, write us, giving full description, and we will quote a low price at once.

SAW GUMMER CORUNDUM WHEELS shown on page 49.

HOWARD CORUNDUM TOOL GRINDING WHEELS

For grinding all kinds of carpenters' and woodworkers' tools, drills, lathe and planer tools, planing mill and paper cutting knives, and for general machine shop use. Can be used wet or dry. When ordering state our catalog number, diameter and thickness of wheel, size of hole in center, whether round or flat face, and the kind of work wheel is to be used for.

No. 9M58806 With flat face.

Diameter, inches	2	3	4	5	6	8	10	12	14	16	18
1/4 in. thick. Price	\$0.10	\$0.13	\$0.18	\$0.24	\$0.34	\$0.52	\$0.74	\$0.89			
3/8 in. thick. Price	.12	.17	.22	.30	.39	.58	.83	.95	\$1.22		
1/2 in. thick. Price	.14	.22	.26	.37	.44	.64	.92	.99	1.49		
3/4 in. thick. Price	.16	.26	.32	.44	.58	.87	1.23	1.48	2.09	\$2.54	\$2.98
1 in. thick. Price	.18	.30	.38	.52	.69	1.14	1.57	1.82	2.62	3.19	3.92
1 1/4 in. thick. Price			.61	.89	1.38	1.88	2.22	3.17	3.86	4.76	
1 1/2 in. thick. Price			.73	.98	1.62	2.19	2.60	3.64	4.47	5.73	
2 in. thick. Price				1.39	1.98	2.87	3.28	4.39	5.61	6.98	
3 in. thick. Price					2.95	3.75	4.45	5.95	7.75	9.95	

No. 9M58808 With round face.

Diameter, inches	2	3	4	5	6	8	10	12	14	16	18
1/4 in. thick. Price	\$0.10	\$0.13	\$0.18	\$0.24	\$0.34	\$0.52	\$0.74	\$0.89			
3/8 in. thick. Price	.12	.17	.22	.30	.39	.58	.83	.95	\$1.22		
1/2 in. thick. Price	.14	.22	.26	.37	.44	.64	.92	.99	1.49		
3/4 in. thick. Price	.16	.26	.32	.44	.58	.87	1.23	1.48	2.09	\$2.54	\$2.98
1 in. thick. Price	.18	.30	.38	.52	.69	1.14	1.57	1.82	2.62	3.19	3.92
1 1/4 in. thick. Price			.61	.89	1.38	1.88	2.22	3.17	3.86	4.76	
1 1/2 in. thick. Price			.73	.98	1.62	2.19	2.60	3.64	4.47	5.73	
2 in. thick. Price				1.39	1.98	2.87	3.28	4.39	5.61	6.98	
3 in. thick. Price					2.95	3.75	4.45	5.95	7.75	9.95	

HOWARD BLACKSMITHS' SPECIAL CORUNDUM WHEELS

High grade, fast cutting wheels for grinding plow points, shovels, iron and steel castings, edging and joining agricultural implements, and rough work in general. Fastest cutting stones made. If you do rough grinding, try one of these wheels. Can be used wet or dry. When ordering state our catalog number, diameter and thickness of wheel, size of hole in center, whether round or flat face, and the kind of work wheel is to be used for.

No. 9M58801 With flat face.

No. 9M58802 With round face.

Diameter, inches	8	10	12	14	16
1 1/2 in. thick. Price	\$1.57	\$2.18	\$2.58	\$3.62	\$4.42
2 in. thick. Price	1.99	2.85	3.25	4.35	5.60
2 1/2 in. thick. Price	2.52	3.25	3.92	5.32	7.11
3 in. thick. Price	2.94	3.74	4.44	5.94	7.74

HOWARD SPECIAL CORUNDUM CUTLERY GRINDING WHEELS

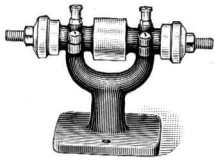
Extra fine wheels for grinding razors, surgical instruments, carving tools, scissors, pocket knives and fine mechanics' tools. May be used wet or dry. Furnished in two different grains. No. 100 for ordinary cutlery grinding. No. 120 for extra fine work, finishing, etc. Unless otherwise specified we send No. 100 grain. When ordering state our catalog number, diameter and thickness of wheel, size of hole in center, and the kind of work wheel is to be used for.

No. 9M58803 Flat face only, No. 100 grain.

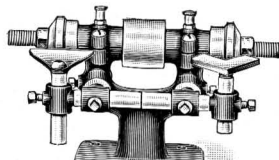
No. 9M58804 Flat face only, No. 120 grain.

Diameter, inches	2	3	4	5	6
1/2 in. thick. Price	15c	20c	25c	30c	40c
3/4 in. thick. Price	18c	23c	28c	35c	47c
1 in. thick. Price	21c	28c	33c	42c	58c
1 1/4 in. thick. Price	24c	32c	36c	49c	68c

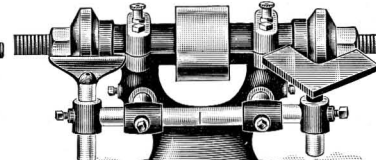
GRINDING WHEEL STANDS



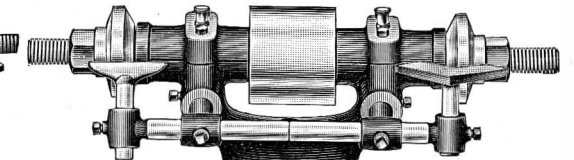
No. 9M58820 A good serviceable stand with dustproof oilers and adjustable bearings. Will run two 6x1-inch emery wheels. Has 3/4-inch steel spindle, 1/2 inch between flanges. Pulley, 2 inches in diameter; 1 1/2-inch face. Complete with lag screws. Weight, about 9 pounds. Price, without emery wheels\$2.35



No. 9M58822 A full size stand, nicely finished. Will run two wheels 10 inches in diameter and 1 1/2 inches thick. Has steel spindle 7/8 inch in diameter in bearings, 3/4 inch between flanges. Has 2-inch adjustable babbitted bearings, brass oil cups and two adjustable tool rests. Pulleys, 2 1/2 inches in diameter, 2-inch face. Complete with lag screws. Weight, about 18 pounds. Price\$4.85



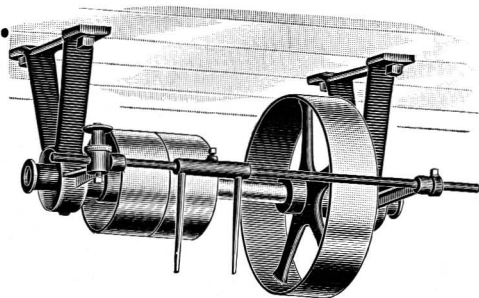
No. 9M58824 Will run two wheels 12 inches in diameter and 2 inches thick; has steel spindle 1 1/8 inches long and 1 1/16 inches diameter in bearings, 1 inch between flanges. Improved bearings. 2 1/4 inches long, properly babbitted and mounted with brass oil cups. Pulleys, 3 1/2 inches in diameter, 2 1/4-inch face, complete with tool rests and lag screws. Weight, about 33 pounds. Price\$7.45



No. 9M58826 Will run two wheels 16 inches diameter and 2 1/2 inches thick, has steel spindle 1 3/8 inches in diameter in bearings, 1 1/4 inches between flanges. Bearings are babbitted 4 inches long and same style as engine lathe bearings, mounted with brass oil cups. Pulley, 5 inches in diameter, 4 1/4-inch face, provided with two adjustable rests. Weight, about 76 pounds. Price, with lag screws\$9.50

BELT COUNTERSHAFTS

Adapted for use with emery wheel stands on this page and for general power purposes. These countershafts can be used on ceiling, side wall or floor, bearings turning so oil cups stay on top. Our countershafts are furnished complete, as illustrated, with driving pulley, tight and loose pulleys, belt shifter, shifter rod and heavy, strong and rigid cast hangers. Prices include lag screws for attaching.



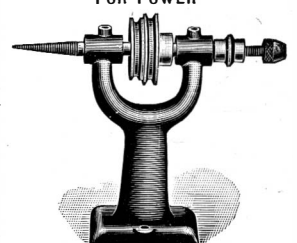
No.	Shaft	Small Pulleys	Drive Pulleys	Weight	Price
9M59620	7/8 in.	Size, 3 3/4 x 1 1/4 in.	Size, 8 x 1 3/4 in.	21 lbs.	\$2.78
9M59622	1 in.	Size, 5 x 2 1/4 in.	Size, 10 x 2 1/4 in.	34 lbs.	3.90
9M59624	1 1/8 in.	Size, 6 x 3 in.	Size, 12 x 2 3/4 in.	49 lbs.	5.30
9M59626	1 1/4 in.	Size, 6 x 4 1/2 in.	Size, 16 x 4 in.	75 lbs.	7.80

HUNTINGTON PATTERN IMPROVED GRINDING WHEEL DRESSER.

No. 9M58810 For truing, shaping and removing glaze while wheel is running. Leaves wheel clean and sharp. Every owner of a grinding wheel should have one of these wheel dressers. Price, with two sets of cutters. 28c

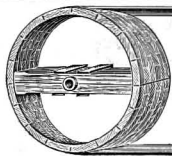
No. 9M58812 Extra Cutters for grinding wheel dressers. Per doz. sets. 66c; per set6c

POLISHING HEAD FOR POWER

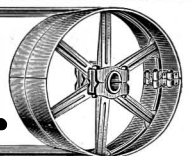


No. 9M59630 For jewelers, gunsmiths, etc. Height, 6 inches; spindle, 9 inches long. Drill chuck one end, taper left hand screw on other. Pulley for cord or belt. Takes wheels up to 6 x 3/4 in. Weight, about 3 pounds. Price, complete with screws69c

ALL GOODS ON THIS PAGE SHIPPED FROM OUR CHICAGO STORE



PULLEYS·SHAFTING·ETC.



FIRST QUALITY GOODS ONLY, AT PRICES THAT SAVE YOU MONEY

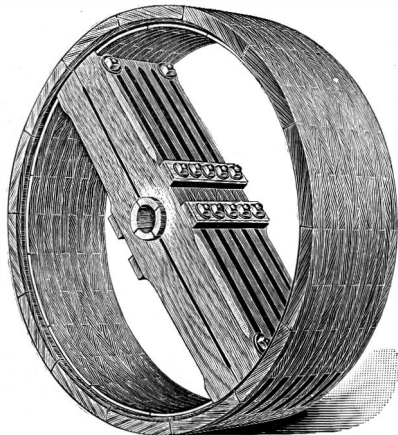
The goods quoted on this page are all made by standard manufacturers. They are strictly first quality and not excelled by any line of transmission supplies to be had at any price.

We carry a large stock of all the pulleys, shafting, hangers, etc., that we quote on this page, in our Chicago store, and they can be shipped the day order is received, along with belting or other supplies that you may order. We do not handle every size made, as neither we nor anyone else

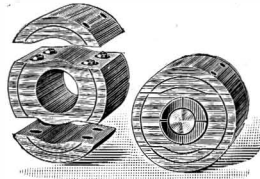
could carry them all in stock and if we did not carry them in stock we could not make prompt shipments. We carry the regular standard sizes, as listed below, the sizes that are most commonly used, and we think they can be made to answer in practically every case.

Send us your orders for these goods. We feel sure you will be pleased with the high quality of the pulleys, shafting, etc., we send you, as well as the promptness with which your order is handled.

WOOD SPLIT PULLEYS.



Light, strong, convenient and safe. All sizes are "split," that is, they can be taken apart and put on shaft without disturbing other equipment. Our wood pulleys are made of clear straight grain hardwood, cut in short pieces and securely glued and nailed together. They are made with standard size holes and by means of interchangeable bushings will fit any smaller size shaft. Our prices as quoted are for pulleys and bushings complete. All our pulleys are made with crowning faces, that is, faces are finished slightly rounding so as to prevent belts from running off.



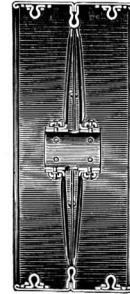
In ordering pulleys it is always necessary to state catalog number, diameter of pulley, width of face, and size shaft pulley is to run on. If you fail to give all this information we cannot fill your order.

No. 9M39090 Wood Split Pulleys.

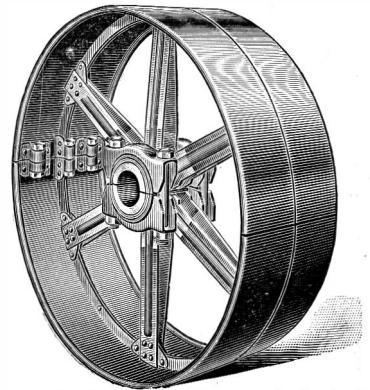
Diam., inches	Face, inches	For Shafts, inches	Weight, About lbs.	Price, each
3	3	3/4 to 1 1/4	2 1/2	\$1.00
3	4	3/4 to 1 1/2	2 1/4	1.05
3	6	3/4 to 1 1/2	2 1/2	1.05
4	3	3/4 to 2	2 1/4	1.05
4	4	3/4 to 2	2 1/2	1.05
4	6	3/4 to 2	3 1/2	1.05
6	3	3/4 to 2	2 1/2	1.05
6	4	3/4 to 2	3 1/2	1.05
6	6	3/4 to 2	4	1.05
8	4	3/4 to 2	4	1.05
8	6	3/4 to 2	6	1.05
10	4	3/4 to 2	5	1.05
10	6	3/4 to 2	7	1.05
12	4	3/4 to 2	13	1.05
12	6	3/4 to 2	14	1.05
14	6	3/4 to 2	16	1.05
16	6	3/4 to 2	19	1.05
18	6	3/4 to 2	22	1.05
20	6	3/4 to 2	28	1.05
24	6	3/4 to 2		1.05

STEEL SPLIT PULLEYS.

Strong, durable, light and convenient. Our Steel Split Pulleys weigh a little more than half as much as the cast iron or wrought iron pulleys, size for size; which means a saving in the power required to drive the shafting that carries them. These pulleys are safe at high speed and capable of making nearly twice as many revolutions per second as the best iron pulleys made.



We have never heard of one of our steel pulleys flying to pieces under the severest strain. The hub clamps are made of steel of such construction that they grip the shaft so tight as to absolutely prevent the pulley from slipping when the greatest strain is put upon the belt, doing away with all key seats and set screws. All sizes of our steel pulleys are "split," that is, they can be taken apart and put on shaft without disturbing other equipment. They are made with standard size holes and by means of interchangeable bushings will fit any smaller size shaft. Our prices as quoted are for pulleys and bushings complete. All our pulleys are made with crowning faces, that is, faces are finished slightly rounding, so as to prevent belts from running off.



In ordering pulleys it is always necessary to state our catalog number, diameter of pulley, width of face and size of shaft pulley is to run on. If you fail to give all this information we cannot fill your order.

No. 9M39093 Steel Split Pulleys.

Diameter, inches	Face, inches	For Shafts, inches	Weight, About lbs.	Price, each
6	3	3/4 to 1 15-16	7 lbs.	\$1.49
6	4	3/4 to 1 15-16	7 lbs.	1.55
6	6	3/4 to 1 15-16	8 lbs.	1.82
8	4	3/4 to 2	12 lbs.	1.69
8	6	3/4 to 2	15 lbs.	1.96
10	4	3/4 to 2	17 lbs.	1.82
10	6	3/4 to 2	21 lbs.	2.09
12	4	3/4 to 2	19 lbs.	2.08
12	6	3/4 to 2	24 lbs.	2.40
16	6	3/4 to 2	28 lbs.	3.11
20	6	3/4 to 2	33 lbs.	4.05
24	6	3/4 to 2	41 lbs.	4.93

COLD ROLLED STEEL SHAFTING.

Smooth straight steel, uniform in size the entire length. Best steel. No better shafting made. We do not handle low grade rolled iron shafting which is sometimes offered. We can furnish only sizes and lengths as listed below. We quote below the regular standard sizes of shafting, the sizes most commonly used. We can furnish pulleys, hangers, pillow boxes, etc., to fit these sizes, and make prompt shipment of all these standard size goods from stock. Be sure to state our catalog number, size and number of feet wanted.

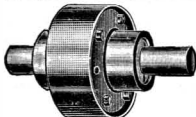


No. 9M39098 Cold Rolled Steel Shafting in 4, 5, 6, 8, 10, 12, 16, 20 and 24-foot lengths only.

Size, inches..... 3 1 1 1/4 1 1/2 1 3/4 2

Weight, per foot, about, lbs..... 2 3/4 4 4 1/2 6 8 10 13

Price, per foot..... 6c 11c 12c 14c 21c 30c 39c



PATENT COMPRESSION FLANGE COUPLING.

No. 9M39080 For connecting two pieces of shafting.

For shaft, in..... 3 1 1 1/4 1 1/2 1 3/4 2

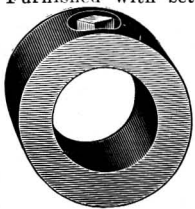
Price, each..... \$1.50 \$1.55 \$1.65 \$1.85 \$2.10 \$2.45

SAFETY SET COLLARS FOR SHAFTING.

No. 9M39083 To put on shafting next to hangers, etc., to prevent its working out. Made of cast iron, well finished. Furnished with set screw let in flush with collar. Cannot catch into clothing, etc. Approved by all factory inspection laws. Carried only as quoted below, in sizes to fit our shafting.

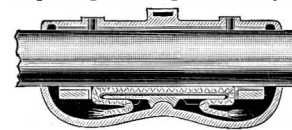
For shaft, inches... 3/4 1 1 1/4 1 1/2 1 3/4 2

Price, each..... 12c 14c 16c 18c 23c 28c

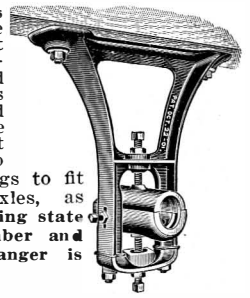


UNIVERSAL BALL AND SOCKET HANGERS.

Double braced, wick oiling pattern. bearings babbitted and reamed. Made strong where strength is needed, being thickest and heaviest at points of greatest strain. For strength and durability they are unsurpassed. Bearings are held securely in place by four sets of screws. Bearings are well babbitted, have large oil reservoirs and wick packing. (See illustration.) If oil cups are filled shaft will run six months or more without requiring refilling. We carry these hangers in two



sizes with bearings to fit different size axles, as quoted. In ordering state our catalog number and size of shaft hanger is wanted for.



No. 9M39085 Universal Hanger. Adjustable from 6 to 8 inches in length.

For shafts, inches..... 3/4 1 1 1/4 1 1/2

Price, complete, each..... \$1.00 \$1.05 \$1.10 \$1.20

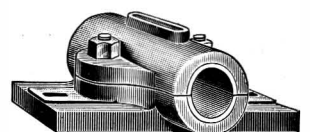
No. 9M39087 Universal Hanger. Adjustable from 10 to 12 inches in length.

For shafts, inches..... 1 1 1/4 1 1/2 1 3/4 2

Price, complete, each..... \$1.25 \$1.35 \$1.50 \$1.65

RIGID PILLOW BLOCKS.

No. 9M39072 Made of soft gray iron, all sizes babbitted and reamed except size 3/4 inch, which is plain bored and not babbitted. These boxes are suitable for all ordinary requirements, are strong and well made and will give satisfaction in use. Furnished in sizes only as quoted below, to fit our shafting. In ordering state catalog number and size of shaft for which pillow blocks are wanted.



For shaft, inches..... 3/4 1 1 1/4 1 1/2 1 3/4 2

Price, each..... 30c 33c 36c 48c 67c 87c

ALL GOODS ON THIS PAGE SHIPPED
FROM OUR CHICAGO STORE.

MACHINERY SUPPLIES

HIGH GRADE BABBIT METAL.

Made from new, high grade anti-friction metals, thoroughly refined and properly mixed to give the best results. All of it is entirely dependable and will give good service if used for the purposes for which we recommend it. Our babbitt metal is made especially for us by one of the largest and most favorably known manufacturers of anti-friction metals in this country, a manufacturer who sells identically the same metals under his advertised brands at one-third to one-half more than we ask. If you want the best metal made, the kind that you would have to pay 22 to 25 cents per pound for in regular stores, try our Lubricating Brand.

7^C PER POUND
No. 4 BABBIT
METAL.



No. 9M36450 Standard quality, the usual 10 cents per pound kind. A fair grade metal, better than usually offered under the No. 4 brand. Suitable for use on low speed and farm machinery. In 1-lb. bars. Price, per pound, .7c

10^C PER POUND
No. 2 BABBIT
METAL.



No. 9M36451 A good general purpose metal. The grade that usually sells for 15 cents per pound. Gives good service on all ordinary machinery running at average speed. Excellent value at our price. Put up in 1-pound bars. Price, per pound, 10c

13^C PER POUND
No. 1 BABBIT
METAL.



No. 9M36454 A high quality metal, the regular 18 to 20 cents per pound kind elsewhere. Fully equal to the best grades generally offered by others. Suitable for high speeds and heavy loads. Put up in 1-pound bars. Per pound, 13c

16^C PER POUND LUBRICATING GRADE BABBIT METAL.



No. 9M36456 An extra high quality copper mixed metal, a better grade than is usually carried by supply houses. This identical same metal is regularly sold under an advertised brand at 22 to 25 cents per pound. Will stand more speed, under heavier loads and outlast any metal on the market at less than 22 cents per pound. Put up in 1-pound bars. Price, per pound, .16c

49^C PER BAR OLD HICKORY BABBIT METAL IN 2½-POUND BARS.



No. 9M36461 A well known metal of extra high grade that usually sells for 25 cents per pound. Old Hickory is preferred by many high class mill men, and it always gives good service. Especially recommended for engines and fine high speed machinery. Made in round bars about 2½ pounds each, one side cone shaped to fit bottom of melting ladle. We do not sell less than a 2½-pound bar. Price, per bar, .49c

PURE BLOCK TIN.

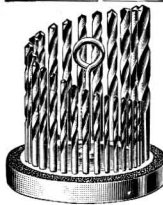
No. 9M36467 **PURE BLOCK TIN** Absolutely pure. Used in making anti-friction metal, for tinning sheet steel and various other purposes. Comes in bars of about 1 pound each. We do not break bars. Price, per bar, .48c

GRAPHITE CRUCIBLES.

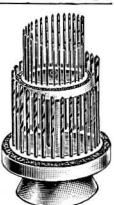
No. 9M36470 First quality. Full size, nicely finished. Will not flake nor crack.

	Height	Diam.	Price
No. 1	3 1/2 in.	2 3/4 in.	26c
No. 3	4 1/2 in.	3 3/4 in.	39c
No. 5	6 in.	4 in.	49c
No. 8	7 in.	4 1/2 in.	66c
No. 10	7 1/2 in.	5 in.	79c

STRAIGHT SHANK TWIST DRILLS.



Cannot be used in the ordinary bit brace. Must be used in a chuck made for round shank drills. The shank and twist are the same size. Hot forked from the finest steel, accurately ground and will outlast the ordinary milled drills offered by others two to one. We guarantee the quality equal to any made. We recommend the purchase of a complete set with stand, as it is the handiest way to keep these drills. Stand has a hole for every size, with size marked near it.



No. 9M56762 Set of 29 Straight Shank Twist Drills, sizes 1-16 to 1/2-inch by 6ths, mounted on revolving nickel plated stand, as illustrated. Price, complete, .423

No. 9M56764 Set of 60 Straight Shank Twist Drills, wire gauge, sizes 1 to 60, mounted on revolving nickel plated stand, as illustrated. Price, complete, .362

No. 9M56760 Straight Shank Twist Drills. Size wanted.

Diam. in 6ths of in.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Length, inches...	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/2	4 3/4	5	5 1/4	5 1/2	5 3/4	6	6 1/4	6 1/2	6 3/4
Price, each.....	3c	4c	4c	4c	5c	5c	6c	7c	7c	8c	9c	9c	9c	10c	10c	11c	11c	11c
Per dozen.....	31c	34c	37c	41c	45c	50c	55c	61c	67c	74c	81c	89c	96c	104	112			
Diam. in 6ths of in.	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
Length, inches...	4 1/2	4 3/4	5	5 1/4	5 1/2	5 3/4	6	6 1/4	6 1/2	6 3/4	7	7 1/4	7 1/2	7 3/4	8	8 1/4	8 1/2	8 3/4
Price, each.....	\$0.11	\$0.12	\$0.13	\$0.14	\$0.15	\$0.16	\$0.17	\$0.17	\$0.18	\$0.20	\$0.21	\$0.22	\$0.22	\$0.23				
Per dozen.....	1.20	1.28	1.36	1.45	1.55	1.66	1.76	1.86	1.96	2.08	2.16	2.24	2.33	2.45				

No. 9M56760 Straight Shank Twist Drills. Size wanted.

Diam. in 6ths of in.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Length, inches...	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/2	4 3/4	5	5 1/4	5 1/2	5 3/4	6	6 1/4	6 1/2	6 3/4
Price, each.....	3c	4c	4c	4c	5c	5c	6c	7c	7c	8c	9c	9c	9c	10c	10c	11c	11c	11c
Per dozen.....	31c	34c	37c	41c	45c	50c	55c	61c	67c	74c	81c	89c	96c	104	112			
Diam. in 6ths of in.	19	20	21	22	23	24	25	26	27	28	29	30	31	32				
Length, inches...	4 1/2	4 3/4	5	5 1/4	5 1/2	5 3/4	6	6 1/4	6 1/2	6 3/4	7	7 1/4	7 1/2	7 3/4	8	8 1/4	8 1/2	8 3/4
Price, each.....	\$0.11	\$0.12	\$0.13	\$0.14	\$0.15	\$0.16	\$0.17	\$0.17	\$0.18	\$0.20	\$0.21	\$0.22	\$0.22	\$0.23				
Per dozen.....	1.20	1.28	1.36	1.45	1.55	1.66	1.76	1.86	1.96	2.08	2.16	2.24	2.33	2.45				

HIGH GRADE HAND DRILL.



No. 9M55934 Has malleable frame, steel spindle and pinion, cut gears and hollow cocobolo handle. Length, 10 1/2 inches. Price includes eight drill points, 1-16 to 1-64 inch. Price, .103

GOODSELL'S EXTRA LARGE HIGHEST GRADE HAND DRILL.



No. 9M55954 Best hand drill made. Usually sells for \$2.75 and up. Has double gears, cut teeth, two speeds and a three-jawed chuck. Takes twist drills up to 3/4 inch. Frame is malleable iron, japanned, with cocobolo handle. Head is hollow, with screw cap. Length, 14 1/2 inches. No drill points furnished. Price, .216

DOUBLE GEARED BREAST DRILL.



No. 9M56626 Has ball bearings, nickel steel frame, 6-inch drive wheel, extension crank, adjustable breast plate and cut gears. Protected level attachment shows when the tool is being held true. Parallel jaws take all sizes bit stock and round shank drills 1/4 to 1/2 inch. Price, .300

GOODSELL'S BENCH DRILL.

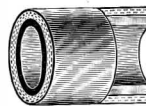


No. 9M56682 Strong and substantial, unexcelled for light work; has cut gears, steel feed screw, adjustable table and a special vise for holding work. Jaws open 13-16 inches and operate on a right hand and left hand screw. Drill is furnished with three-jawed chuck, capacity 0 to 3/4 inch, and eight fluted drills from 1-16 to 1-64 inch. Height, from table to feed wheel, 13 inches. Weight, about 15 lbs. Price, .409

MILL HOSE.

Well made of best materials, specially treated to make it suitable for the purpose it is to serve. Our hose is strong and uniform and every length is tested and carefully inspected before leaving the factory.

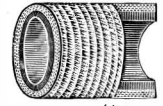
HARD RUBBER SUCTION HOSE.



With smooth bore and extra thick walls to prevent collapsing. Best suction hose made for the price. Sold in multiples of 5 feet only, as 5, 10, 15, 20 and up to and including 50 feet in one piece. Couplings and clamps not included in price.

No. 9M35394
Size, inches... 3/4 1 1 1/4 1 1/2
Per foot.... 17c 19c 21c 24c

COTTON COVERED HARD RUBBER SUCTION HOSE.



Heavy woven cotton cover and thick hard rubber walls insure strength and prevent collapsing. Nicely finished, with smooth bore and cotton cover. The best grade made. In multiples of 5 feet only, any length 5 to 50 feet. Couplings and clamps not included in price.

No. 9M35399
Size, inches... 3/4 1 1 1/4 1 1/2
Per foot.... 22c 26c 30c 35c

2-INCH TANK SUCTION HOSE.

With smooth bore to reduce friction, inserted spring steel wire to prevent collapsing and enlarged ends to fit over pump connections. Sold in 10, 15, 20 and 25-foot pieces only. Size inside, 2 inches. Requires 2 1/4-inch clamps. Price does not include clamps.



No. 9M35391 Standard Grade. As illustrated. Thick walls, good quality rubber and duck. Best hose made for the price. Price, per foot, .23c

No. 9M35390 Extra Grade. Heavy braided cotton cover. Very strong and durable. Equal to the best grades sold by others. For ordinary use this is the hose to buy. Price, per foot, .34c

No. 9M35398 Special Grade. Extra heavy woven cotton cover. Finest rubber, best duck. Will stand more hard usage and outlast any other suction hose made. A hose for hard service, that will stand the wear and tear. Price, per foot, .39c

EXTRA GRADE STEAM HOSE.



No. 9M38982 An extra quality hose, a better grade than is usually sold. Specially treated to prevent injury from heat and extra with thick walls and made heavy cotton duck plies to stand the pressure. For ordinary steam use it can be depended upon. Our prices save you money. We sell any number of feet.

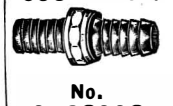
Inside No. Will Stand Price, Diam. of Pres. Piles sure foot
1/2 in. 3 40 pounds 17c
3/4 in. 4 53 pounds 27c
1 in. 4 40 pounds 37c

GALVANIZED WROUGHT STEEL HOSE CLAMPS.



No. 9M39000 Order clamps same size as diameter of hose, except for 2-inch tank hose, which requires 2 1/4-inch clamps.
Size, inches... 1/2 3/4 1 1 1/4
Price, each... 2c 2c 3c 4c
Size, inches... 1 1/2 2 2 1/4
Price, each... 5c 6c 9c

BRASS HOSE COUPLINGS.



No. 9M38998 Order couplings same size as inside diameter of hose. Two clamps required for each pair of couplings.
Size, inch... 1/2 1
Per pair... 7c 9c 12c
Size, in. 1 1/2 2
Per pair... 27c 42c 78c

RUBBER HOSE WASHER.

No. 9M39003 One dozen Rubber Hose Washers. Size, 3/4 in. Price, .5c

ROUND SHANK DRILL BITS.

WITH 1/2-INCH SHANKS. FIT ANY OF OUR BLACKSMITHS' DRILLS.

No. 9M3860 Hot forged from finest steel by a new process. The best part of the steel is not cut out and thrown away. They are tougher, stronger and better than the ordinary milled drills and will outlast them two to one. All of our drills are accurately ground to a micrometer gauge, and sizes are exact. Every bit is carefully inspected and fully guaranteed.

Size, in.....	1/2	5-32	3-16	7-32	3/4	9-32	5-16	11-32	3/2	13-32
Price.....	13c	14c	16c	17c	19c	20c	22c	23c	25c	26c
Size, in.....	7-16	15-32	1/2	11-32	9-16	19-32	2c	21-32	11-16	23-32
Price.....	27c	28c	29c	30c	31c	32c	34c	36c	38c	40c
Size, in.....	25-32	13-16	27-32	29-32	15-16	31-32				
Price.....	41c	42c	44c	46c	47c	49c	53c	56c	59c	

SET OF 62 Round Shank Drills. You save on each size when you buy a complete set. Set contains one each, 3-16, 1/2, 5-16, 3/4, 1 1/2, 1 3/4 inch.

No. 9M3861 Price, per set, \$1.41

SET OF 8 Round Shank Drills. Best assortment for the average blacksmith. Contains the sizes you use most. Our price saves you money on every size. Set contains one each, 3-16, 1/2, 5-16, 3/4, 1 1/2, 1 3/4 inch.

No. 9M3862 Price, .93

Universal Combination Ratchet Breast and Chain Drill.



No. 9M56628 Takes the place of several different tools and combines important features possessed by no other drill. It is an extra strong, well made tool and should be in the outfit of every metal worker who ever needs a drill of this kind. Bores straight or at any angle, has ball bearing head and socket, cut gears and two-speed adjustment. Handles are cocobolo, crank is adjustable in length from 4 to 7 1/2 inches, and ratchet can be used when required. Chuck is fitted with forged steel alligator jaws which take all sizes square shank bits and round shank drills from 1/4 to 3/4 inch. Length of chain, 4 1/2 feet. Weight, 7 1/2 pounds. Price, .567



RUBBER AND LEATHER BELTING



First Quality Goods at Money Saving Prices

RUBBER BELTING

Made throughout of the very best materials, both cotton and rubber being carefully selected. Our rubber belting stretches less than any on the market, which prevents slipping and makes the belt deliver full power. We do not recommend rubber belts for use on threshers, as canvas belting is superior for such use. Be careful in making order for belt, for if sent as ordered, it cannot be taken back or exchanged.

About Endless Belts—We do not encourage the making of belts endless, as only in extreme cases is it necessary, for it is better to have a laced joint where stretch can be taken up when occasion requires. If belts are wanted made endless allow the price of 3 feet of belt for lap and labor of splicing.

2-Ply Banner Brand Rubber Belting.

Has rubber outer coatings, as shown in illustration, and two cotton duck plies. It is thoroughly well made, strong and durable and will outlast any other belting of its weight. Banner Belting is the best two-ply belting sold by anyone. Recommended for light work, hand power machines, farm machinery, etc. Equal to belting offered by others at 25 to 50 per cent more than our prices.

No. 9M38902 Banner Two-Ply Rubber Belting.

Width, inches. 1 1¼ 1½ 2 2½ 3
Price, per foot. 4c 5c 6c 7c 8c 9c

3-Ply and 4-Ply Leader Rubber Belting.

Our Leader Belting is a most excellent grade, fully equal to the very best belting usually sold. Has a heavy outer coating of good rubber, long fiber cotton duck plies, and is well made throughout. The four-ply is made just like illustration. We recommend it as best for all general purposes and guarantee it to give satisfaction.

No. 9M38903 Leader Three-Ply Rubber Belting.

Width, inches. 1½ 2 2½ 3 3½ 4 4½ 5
Price, per foot. 8c 9c 11c 13c 15c 17c 19c 22c

No. 9M38905 Leader Four-Ply Rubber Belting.

Width, inches. 3 4 5 6 7 8 10 12
Price, per foot. 15c 19c 23c 27c 32c 37c 45c 53c

4-Ply Defiance Brand Rubber Belting.

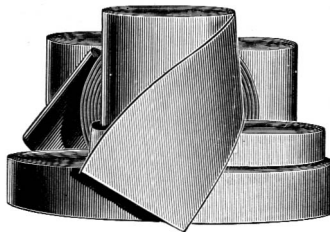
Made with rubber outer coatings and four heavy cotton duck plies, as shown in illustration. Defiance Rubber Belting is the best made, strong enough and heavy enough to pull any load. Used extensively in saw mills, stone quarries and places where the strain is hard. Firm and tough, guaranteed to run true and not to separate between the plies. If you need an extra quality rubber belt, you will make no mistake in ordering our Defiance brand.

No. 9M38904 Defiance

Four-Ply Rubber Belting.

Width, in. 3 4 5 6
Price, per ft. 18c 24c 31c 38c

Width, in. 7 8 10 12
Price, per ft. 45c 52c 64c 76c



LEATHER BELTING

Made from carefully selected oak tanned hides, the different grades being according to weight, length of lap and part of hide leather is taken from. Stretched just enough to take out the "give," but not enough to take out the life. Quality considered, you will find we save you at least one-fourth on anything in belting. Leather

belting is not suitable for outdoor use or where it will get wet. Double thick or two-ply leather belting furnished at twice the price of single ply.

About Endless Belts—We do not encourage the making of belts endless, as only in extreme cases is it necessary; however, if belts are wanted made endless allow the price of 3 feet of belt for lap and labor of splicing.

Agricultural Standard Leather Belting.

Made up to 3 inches wide of light oak tanned leather.

Suitable for hand power machines, farm machinery, etc. For light service this belting has proven very satisfactory in use, and at our low price is an exceptional value. Not recommended for regular factory use or heavy work.

No. 9M38910 Agricultural Standard Belting.

Width, in. 1 1¼ 1½ 1¾ 2
Price, per ft. 6c 8c 10c 12c 13c

Width, in. 2¼ 2½ 2¾ 3
Price, per ft. 14c 15c 17c 19c

Extra Factory Standard Leather Belting.

Made up to 6 inches in width of short lap oak tanned stock. Suitable for regular mill and factory use. The best general purpose belting made. Will give good service and stand any but the heaviest loads. Fully equal to the best grades offered by other concerns at higher prices.

No. 9M38911 Extra Factory Standard Belting.

Width, inches. 1 1¼ 1½ 1¾ 2 2¼ 2½ 2¾
Price, per foot. 8c 10c 12c 14c 16c 18c 20c 22c

Width, inches. 3 3½ 4 4½ 5 5½ 6
Price, per foot. 24c 26c 29c 32c 35c 38c 42c

High Speed Special Leather Belting.

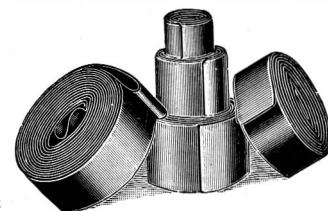
Made of heavy selected oak tanned leather, strictly short lap; cut from the solid part of the hide, thoroughly stretched, and guaranteed the most perfect belt made. Our high speed special belting is especially suitable for extra high speed machinery, small pulleys, heavy loads, main drives and severe service generally. It is a belting that can be depended on to deliver the greatest amount of power, to stand up under the hardest work and to outlast any other belt on the market.

No. 9M38912 High Speed Special Belting.

Width, inches. 1½ 2 2½ 3
Price, per foot. 13c 17c 23c 28c

Width, inches. 3½ 4 5 6
Price, per foot. 31c 36c 45c 53c

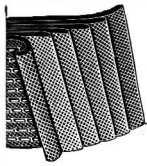
Width, inches. 7 8 10 12
Price, per foot. 61c 70c 86c 99c



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CANVAS BELTING

REGULAR STITCHED CANVAS BELTING.



Made of heavy long fiber cotton duck or canvas, woven very hard and with rows of stitching so close together that it cannot separate. Folding and stitching of the canvas is done by machines constructed and adapted for the purpose and under the direction of experienced workmen, insuring a perfect belt, evenly stitched. It is thoroughly soaked in oil to keep it flexible and waterproof and then painted red with a special composition paint which gives it an excellent friction and prevents it from slipping on the pulleys. Our canvas belting is not affected by heat or cold and is flexible under all conditions. Thoroughly stretched before leaving the factory. This is the regular standard quality sold by leading supply houses at considerably higher prices. Especially recommended for threshers, saw mills, quarries, brickyards, wood working plants, cotton gins, etc. Use an awl in making holes for lacing canvas belting. Never use a belt punch, as it cuts the threads.

If belts are wanted made endless, allow the price of 3 feet of belt for lap and labor of splicing.

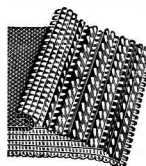
No. 9M38938 Four-Ply Stitched Canvas Belting.

Width, inches.....	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2
Price, per foot.....	5c	6c	8c	10c	11c	13c	15c
Width, inches.....	5	6	7	8	9	10	12
Price, per foot.....	17c	19c	21c	23c	26c	29c	34c

No. 9M38939 Six-Ply Stitched Canvas Belting.

Width, inches.....	3	4	5	6	7
Price, per foot.....	14c	18c	22c	27c	32c
Width, inches.....	8	9	10	12	14
Price, per foot.....	37c	42c	48c	55c	64c

SOLID WOVEN CANVAS BELTING.



Made of best hard twisted long fiber cotton, woven solid in one piece. Threads go through and through as well as crosswise and lengthwise. Illustration of a piece of this belt which was trimmed off on one edge and opened up at the end shows the way it is woven. With ordinary canvas belting, if the stitching wears out the plies come apart; with this solid woven canvas belting there are no stitches to wear out nor plies to come apart. It is just what we call it, **solid woven**, same as a piece of cloth, only thicker, and with rounded edges. After weaving, this belt is thoroughly stretched, soaked in a special oil and then painted with an extra quality black paint which gives it the necessary friction to prevent its slipping on the pulleys. It is not affected by heat or cold, is always flexible, thoroughly waterproof and for extra hard work and rough service is the belt to buy. There are no real plies or layers in this belt; but for the purpose of comparison, we call it four-ply and six-ply; which means that it is about the same thickness and weight as ordinary four-ply and six-ply canvas belting. We cannot furnish solid woven belts made endless.

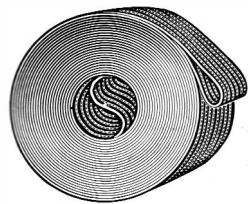
No. 9M38967 Four-Ply or Medium Weight Solid Woven Canvas Belting.

Width, inches.....	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2
Price, per foot.....	5c	7c	9c	10c	11c	13c	14c
Width, inches.....	5	6	7	8	9	10	12
Price, per foot.....	17c	19c	23c	26c	29c	32c	

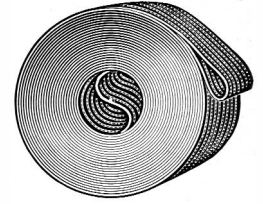
No. 9M38970 Six-Ply or Heavy Weight Solid Woven Canvas Belting.

Width, inches.....	3	4	5	6	7	8	10	12
Price, per foot.....	15c	19c	24c	29c	34c	40c	49c	58c

ENDLESS CANVAS BELTS



Made of our regular stitched canvas belting, spliced in such a manner that they are no thicker and are just as strong and flexible at point of splicing as at any other part of belt. Made of new strong duck or canvas, closely stitched, evenly stretched and filled with a special oil which keeps them flexible and waterproof. They are then painted with a first quality red paint which causes them to take hold of the pulley and prevents slipping. They do not become stiff in cold weather and are the most satisfactory belts made for threshing outfits, quarries, brick machines, saw mills or anywhere a good, strong serviceable belt is required. We carry in stock the belts listed below and can ship any size promptly. Actual lengths of endless belts are 3 feet less than stated, as it requires the price of 3 feet for lap and labor of making belts endless.



Four-Ply Endless Canvas Belts. Actual lengths 3 feet less than stated.

Length, feet.....	50	100	120	130	140	150	160
Weight, about, pounds.....	50 to 75	65 to 85	80 to 110	85 to 120	90 to 125	95 to 135	110 to 140
No. 9M38950 6 inches wide. Price, each.....	\$13.60	\$17.00	\$20.40	\$22.10	\$23.80	\$25.50	
No. 9M38951 7 inches wide. Price, each.....	16.00	20.00	24.00	26.00	28.00	30.00	32.00
No. 9M38952 8 inches wide. Price, each.....	18.40	23.00	27.60	29.90	32.20	34.50	36.80

Five-Ply Endless Canvas Belts. Actual lengths 3 feet less than stated.

Length, feet.....	100	120	140	150	160
Weight, about, pounds.....	100 to 115	115 to 135	125 to 145	135 to 155	
No. 9M38946 7 inches wide. Price, each.....	\$30.00	\$35.00	\$37.50	\$40.00	
No. 9M38948 8 inches wide. Price, each.....	34.20	39.90	42.75	45.60	

BELT DRESSING, BELT LACING AND BELT HOOKS

LIQUID BELT DRESSING.

No. 9M38944 To be applied with a brush. For leather and canvas belts. Especially desirable for leather belts, as it softens and preserves the leather. Prevents slipping, counteracts effect of moisture, prolongs life and durability of belts. Directions on each can. Usually sells for one-third to one-half more than our price.



Size	Price
Quart can.....	\$0.54
Gallon can.....	1.95

HERCULES BELT DRESSING.

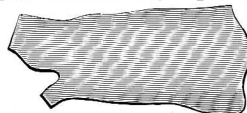


No. 9M38945 The most convenient belt dressing made. Just hold end of stick against moving belt. Positively prevents slipping. Does not harden or injure belts. In 1-pound sticks. Usual 25-cent value. Our price, per stick.....11c

LACE LEATHER CUTTER.

No. 9M38957 The best tool in use for the purpose. Adjustable to cut various widths. Tempered steel cutter, hardened steel screws. Price.....19c

BEST RAWHIDE LACE LEATHER.



No. 9M38954 Best carefully selected tough flexible rawhide. We do not sell the flimsy easily torn kind. We advise buying the larger size sides as they are heavier and stronger, being taken from larger cattle. We do not cut sides.

Size side	per Side
About 8 square feet.....	\$2.02
About 10 square feet.....	2.52
About 12 square feet.....	3.01
About 15 square feet.....	3.82
About 18 square feet.....	4.54

BEST CUT RAWHIDE LACING.



No. 9M38955 Cut from selected hides by improved machinery, insuring uniformity.

Width, in.....	3/4	5-16	3/4
Price, 50 ft.....	\$0.36	\$0.44	\$0.52
Price, 100 ft.....	.65	.81	.97
Width, in.....	1/2	3/4	1
Price, 50 ft.....	.69	.94	1.12
Price, 100 ft.....	1.28	1.69	2.02
No. 9M38956 100 feet assorted cut lacing, 3/4, 5-16, 3/4 and 1/2 inch wide. Price.....			98c

STEEL BELT LACING.

No. 9M38958 Tempered steel, extra strong, quickly applied, saves the belt and makes a smooth joint. Will stand very high speed and is the best steel belt fastening made. Usually sold at much higher prices. In boxes of 100 inches, assorted lengths, 1 1/4 to 2 3/4 inches. Be sure to order size best suited to your belt.



Size, No. 1. For single leather belts. Width lacing, 3/4 inch.	
Price, per box.....	46c
Size No. 11. For three-ply rubber belts. Width lacing, 1 inch.	
Price, per box.....	58c
Size No. 12. For four-ply rubber or canvas belts. Width lacing, 1 1/4 inches. Price, per box.....	72c

OVAL BELT HOOKS.

No. 9M38959 Best Norway iron, pointed and polished. In boxes of 250 hooks.

Size No.	Length, about	Price, per Box
12	3/4 inch	12c
10	1 inch	16c
8	1 1/4 inches	24c
6	1 3/4 inches	36c

COMPOSITION COIL WIRE BELT LACING.

No. 9M38962 Better than the 35 to 40-cent kind sold by others. For belts running at high speed under severe strain or with idlers. Lies flush with face of belt and does not wear out on pulleys. Size No. 1.....1 1/2
For Belts, inches.....1 to 6 6 to 20
Price for 50 feet.....15c 17c



ACME BELT HOOKS.
No. 9M38960 For rubber, leather or canvas belting. Made of best annealed coppered steel wire. In boxes of 200 hooks.

No. 0, 5/8 inch wide.	
No. 1, 3/4 inch wide.	
No. 2, 7/8 inch wide.	
No. 3, 1 inch wide.	
Assorted No. 0 to No. 3 or all one size, as desired. State size.	
Price, per box.....	11c

BLAKE'S PATTERNS BELT STUDS OR FASTENERS.

No. 9M38964 Save time, trouble and lace leather. Length, inches.....5 6 8 10
Price, per dozen.....39c 53c 66c
Price for 100.....



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FULTON CIRCULAR SHOP SAWS

HIGH SPEED, EXTRA QUALITY SAWS FOR USE IN FACTORIES, SHOPS AND GENERAL WOOD WORKING PLANTS.



Fulton Circular Saws are made of best crucible saw steel of the correct gauge or thickness for the size and kind of saw and with the proper number of teeth as listed below. All Fulton Saws are evenly tempered by the most improved process and are free from hard or soft spots. They are ground on special machinery which makes them absolutely true to gauge and wonderful savers of power. Fulton Circular Saws are carefully balanced and are tested at full speed at the factory to see that they are in proper tension and hammered as they should be. Every Fulton Circular Saw is hand smithed and hand blocked, hand filed and hand set, made just the very best a skilled workman can make it and sent out sharp and ready for use the moment it reaches you. Our prices on Fulton Circular Saws average from one-fourth to one-third less than other standard makes and we guarantee the quality of the Fulton Saw superior to any other.

Experience has shown us that saws 4 to 36 inches in diameter of the specifications listed below are best for general use. All our circular saws are sent out sharp and ready to run. We carry these saws in stock, as listed, and can ship promptly from Chicago upon receipt of order.



No. 9M59402 Fulton Circular Cut Off Saws.						
Diam., inches	Gauge	Arbor Hole, in.	Rev. per Minute	Teeth in Saw	Shipping Wt., about	Price, each
4	19	3/4	5,000	110	4 oz.	\$ 0.40
6	18	3/4	4,800	110	8 oz.	.60
8	18	7/8	4,600	110	1 lb.	.90
10	16	1	4,000	100	2 1/2 lbs.	1.20
12	15	1	3,300	90	4 lbs.	1.50
14	15	1 1/4	2,800	90	6 lbs.	1.90
16	14	1 1/4	2,500	90	8 lbs.	2.30
18	13	1 1/4	2,250	80	10 lbs.	2.70
20	13	1 1/2	1,950	80	12 lbs.	3.20
22	12	1 1/2	1,750	72	15 lbs.	3.70
24	11	1 3/4	1,600	72	20 lbs.	4.20
26	11	1 3/4	1,500	72	24 lbs.	4.70
28	10	1 1/2	1,400	72	28 lbs.	5.50
30	10	1 1/2	1,300	80	33 lbs.	6.25
32	10	1 1/2	1,225	80	38 lbs.	7.50
34	9	1 1/2	1,125	80	45 lbs.	8.75
36	9	1 1/2	1,075	90	50 lbs.	10.00

No. 9M59404 Fulton Circular Rip Saws.						
Diam., inches	Gauge	Arbor Hole, in.	Rev. per Minute	Teeth in Saw	Shipping Wt., about	Price, each
4	19	3/4	5,000	38	4 oz.	\$ 0.40
6	18	3/4	4,800	38	8 oz.	.60
8	18	7/8	4,600	38	1 lb.	.90
10	16	1	4,000	36	2 1/2 lbs.	1.20
12	15	1	3,300	36	4 lbs.	1.50
14	15	1 1/4	2,800	36	6 lbs.	1.90
16	14	1 1/4	2,500	36	8 lbs.	2.30
18	13	1 1/4	2,250	34	10 lbs.	2.70
20	13	1 1/2	1,950	34	12 lbs.	3.20
22	12	1 1/2	1,750	34	15 lbs.	3.70
24	11	1 3/4	1,600	34	20 lbs.	4.20
26	11	1 3/4	1,500	32	24 lbs.	4.70
28	10	1 1/2	1,400	32	28 lbs.	5.50
30	10	1 1/2	1,300	32	33 lbs.	6.25
32	10	1 1/2	1,225	34	38 lbs.	7.50
34	9	1 1/2	1,125	34	45 lbs.	8.75
36	9	1 1/2	1,075	34	50 lbs.	10.00

FULTON CIRCULAR CORDWOOD SAWS

LOW SPEED, FIRST QUALITY SAWS FOR USE ON CORDWOOD AND POLE SAWING MACHINES.



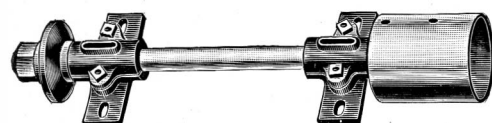
Special saws made for a particular purpose. Will do faster, better work, and stand up longer without sharpening than any other saw you can get for cutting cordwood. They are easily kept in proper condition and the special tooth with deep round gullet gives plenty of room to chamber the sawdust and prevent cracking the saw. Not adapted for use at high speed or for smooth cutting. Made of best saw steel, hand filed, hand set and sent out sharp, ready for use. Fulton Cordwood Saws can only be furnished as quoted below. If you must have a saw in any way different, write for special prices, giving full specifications. Fulton Cordwood Saws as quoted below are carried in stock in Chicago and can be shipped promptly upon receipt of order.

No. 9M59401 Fulton Circular Cordwood Saws.										
Diam., inches	Gauge	Teeth in Saw	Shipping Wt., about	Size Hole in Center, inches.						
18	13	60	10 lbs.	1 1/4	1 1/2	1 3/4	1 1/2	1 3/4		
20	13	60	12 lbs.	\$2.28	\$2.29	\$2.30	\$2.31	\$2.32		
22	12	60	15 lbs.	3.48	3.49	3.50	3.51	3.52		
24	11	60	20 lbs.	4.08	4.09	4.10	4.11	4.12		
26	11	64	24 lbs.	4.68	4.69	4.70	4.71	4.72		
28	10	64	28 lbs.	Not furnished						
30	10	72	33 lbs.	Not furnished						
32	10	72	38 lbs.	Not furnished						
34	9	80	45 lbs.	Not furnished						
36	9	80	50 lbs.	Not furnished						

We will not furnish saws larger than 26 inches in diameter with arbor holes smaller than 1 1/2 inches, as it is not safe to run larger saws on smaller mandrels.

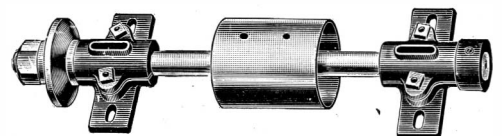
CIRCULAR SAW MANDRELS

FIRST QUALITY, DEPENDABLE MANDRELS. HEAVY AND WELL MADE. THE SAFE KIND TO USE.



No. 9M59450 Pulley on right hand side.

first quality. Arbors have left hand threads. These mandrels are heavy and strong, there are none better made that we know of and you can feel perfectly safe in using them.



No. 9M59452 Pulley in center.

A FULTON SAW AND ONE OF THESE MANDRELS IS A GOOD COMBINATION. TRY THEM. BOTH GUARANTEED SATISFACTORY

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Size No.	0	1	2	3	4	5	6	7	8	9	10	11
Diameter pulley, inches	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6	7	8	9
Face of pulley, inches	3	3 1/2	4	4 1/2	5	5 1/2	6	6 1/2	7	8	9	10
Diameter flange, inches	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6	6	6	6
Length shaft, inches	16 1/2	16 1/2	19	21 1/2	24	26	28	30 1/2	32 1/2	37	41	48
Diameter shaft, inches	3/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	2 1/8
Size hole in saw, inches	3/4	1	1 1/8	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	2
Weight, crated, about, pounds	14	19	27	34	41	45	50	56	69	90	105	146
No. 9M59450 Pulley on right	\$3.23	\$3.52	\$3.81	\$4.26	\$4.79	\$5.28	\$5.67	\$6.43	\$7.98	\$9.42	\$10.86	\$13.94
No. 9M59452 Pulley in center	3.24	3.53	3.82	4.27	4.80	5.29	5.68	6.44	7.99	9.43	10.87	13.95

FULTON CIRCULAR MILL SAWS

Unexcelled in Quality—Unmatchable in Price

Fulton Circular Mill Saws have a reputation for quality second to none and we absolutely guarantee them equal to any saws made, no matter what the price. We have sold Fulton Mill Saws in every state in the Union and repeated orders from large users is the very best proof of their superiority over all other makes. We sell more circular saws to the consumer than any other house in the world and every one of them must please the buyer. If any saw fails to satisfy we will take it back and return the price.

FULTON CIRCULAR SAWS are made of best crucible saw steel, evenly tempered and accurately ground. Fulton Saws are hand smithed, hand blocked, hand filed and hand set; made just as good as a skilled workman knows how. All Fulton Circular Saws 40 inches and larger, both with solid teeth and inserted teeth, are made to order only, and in ordering be sure to give us all specifications as below



so we can make the saw to suit you without the delay that must occur if we have to write you for additional information. We carry plates 40 to 60 inches in diameter in stock at factory in Michigan ready to finish on receipt of order and we make shipment of large saws more promptly than any other firm. All saws 40 inches and larger should have 2-inch mandrel holes, with two 5/8-inch pin holes, spaced 3 inches center to center. In ordering be sure to give all specifications as follows: Number of teeth wanted in saw, gauge at rim, gauge at center, whether spring or swage set temper, speed, feed, whether to cut hard or soft wood, right or left hand, size of mandrel hole, size and distance center to center of pin holes. With the above information complete we can send you a saw and guarantee it to please you.



No. 9M59406 Fulton Solid Tooth Circular Mill Saws.

Diameter, inches	Gauge	No. Teeth in Saw	Revolutions per Minute	Feed, inches	Shipping wt., about	Price, each
40	9	36 to 64	500 to 900	4 to 6 1/2	94 lbs.	\$13.00
42	9	36 to 64	500 to 900	4 to 6 1/2	104 lbs.	16.00
44	9	36 to 64	500 to 900	4 to 6 1/2	114 lbs.	19.00
46	9	30 to 56	500 to 900	4 to 6 1/2	122 lbs.	22.00
48	9	30 to 56	500 to 900	4 to 6 1/2	130 lbs.	26.00
50	8	32 to 60	500 to 900	4 to 6 1/2	138 lbs.	30.00
52	8	34 to 64	500 to 900	4 to 6 1/2	156 lbs.	34.00
54	8	34 to 68	500 to 900	4 to 6 1/2	170 lbs.	38.00
56	8	36 to 70	500 to 900	4 to 6 1/2	184 lbs.	42.00
58	8	38 to 72	500 to 900	4 to 6 1/2	194 lbs.	47.00
60	7	40 to 76	500 to 900	4 to 6 1/2	209 lbs.	52.00

SPECIAL CIRCULAR OF INFORMATION AND SAW ORDER BLANKS SENT FREE ON REQUEST. WE REQUIRE FROM FIVE TO THIRTY DAYS TO FILL SPECIAL ORDERS FOR CIRCULAR SAWS. ON ORDERS FOR SPECIAL SAWS WE CANNOT ACCEPT CANCELLATION AFTER ORDER IS RECEIVED BY US.

No. 9M59412 Fulton Inserted Tooth Circular Mill Saws. With drop forged points made from special tool steel that will stand the hard strain and do the work better than any other. Our prices are for saws with the standard number of teeth as listed, but we can make any size saw to special order with more teeth if desired at an addition to price of 40 cents for each extra tooth.

Diameter, inches	Gauge	No. Teeth in Saw	Revolutions per Minute	Feed, inches	Shipping wt., about	Price, each
40	8	28	500	4	94 lbs.	\$28.00
42	7	30	500	4	104 lbs.	30.00
44	7	30	500	4	114 lbs.	33.00
46	7	30	500	4	122 lbs.	37.00
48	7	30	500	4	130 lbs.	42.00
50	6	32	500	4	138 lbs.	47.00
52	6	34	500	4	156 lbs.	53.00
54	6	34	500	4	170 lbs.	59.00
56	6	36	500	4	184 lbs.	66.00
58	6	38	500	4	194 lbs.	73.00
60	6	40	500	4	209 lbs.	82.00

Extra points, holders and wrenches are additional to price of saw and if wanted should be ordered separately as per price list below.

MIXTER'S CHAMPION SAW GUMMER.

\$15.00

Genuine Mixer's Saw Gummers have been thoroughly tested and tried out by continuous hard service, and the really experienced mill man will have no other kind. Imitations of this gummer are sometimes offered at about our price, but they are poorly made, of inferior material, and would be dear at any price. It is self acting, throwing itself out of gear when teeth are cut to required depth, making them of uniform length. The line of the teeth can be cut at any angle desired. Cuts very rapidly and with no risk of bending, breaking or case hardening saw. Full directions with each machine. Price includes three cutters, sizes 3/4, 1/2 and 1 inch, grinder and wrench.

No. 9M59470 Price.....\$15.00

No. 9M59476 Genuine Mixer's "XX" Gummer Cutters; for Mixer's gummers only. Will do as much work as six ordinary cutters. State size of hole as well as size of cutter or send an impression of one end of cutter on paper.

Diameter, inches	3/4	1/2	3/8	5/16	1/4
Size hole, inches	3/4	1/2	3/8	5/16	1/4
Price, each	35c	36c	37c	42c	49c

Diameter, inches	1	1 1/2	2	2 1/2	3
Size hole, inches	1	1 1/2	2	2 1/2	3
Price, each	56c	63c	70c	87c	

GENUINE MIXTER'S DUPLEX SAW SWAGES.

Have improved patent guides and are low priced. These swages spread the teeth without reducing their length, giving them strong, substantial shoulders; make the saw cut easily, clear, well and steady in the cut. Full directions sent with each swage.

Catalog No.	Size No.	For	Price
9M59466	0	Small thin saws.	\$2.54
9M59464	1	10 to 14-gauge saws.	3.19
9M59462	2	9 to 12-gauge saws.	3.81
9M59460	3	5 to 10-gauge saws.	4.47

POINTS, HOLDERS AND WRENCHES FOR FULTON INSERTED TOOTH SAWS.

Extra Points, Holders and Wrenches, shipped from factory in Michigan only, customers paying transportation charges.

No. 9M59418 Fulton Drop Forged Extra Points only. Price, each...\$0.03

Per 100.....2.65

No. 9M59419 Fulton Drop Forged Extra Holders for points. Price, each.....28c

Per 100.....\$26.25

No. 9M59421 Fulton Inserted Tooth Wrenches. Price, each.....52c

HOWARD SPECIAL SAW GUMMER WHEELS.

Perfect gummer wheels. Cut freely without filling or glazing, leave teeth free from burrs or rough edges, cut fast, positively will not case harden or burn the saw.

Diam., inches	1/4	3/8	1/2	3/4	1
Price, each	\$0.58	\$0.67	\$0.72	\$0.95	
8 Price.....	.87	.98	1.09	1.43	
10 Price.....	1.20	1.30	1.44	1.99	
12 Price.....	1.43	1.51	1.58	2.40	

FULTON BAND SAW BLADES.

Made from a special brand of steel, carefully hardened and tempered. Sufficiently hard to stand severe usage but still tough and flexible. Fully guaranteed. Saws set and sharpened. Order by number and give exact length wanted. Be sure to specify gauge and number of teeth to the inch desired.

No. 9M59432 Fulton Band Saws. Brazed.

Width, inches	Gauge	No.	Shipping Weight, per ft.	Length, Feet	10	12	14	16	18	20
1/2	21 or 22	1/2 oz.	\$0.49	\$0.52	\$0.57	\$0.66	\$0.73	\$0.80		
3/4	21 or 20	1 oz.	.56	.60	.65	.71	.78	.85		
1	21 or 21	1 oz.	.67	.72	.76	.81	.86	.91		
1 1/4	21 or 20	1 oz.	.73	.78	.83	.88	.94	1.02		
1 1/2	21 or 23	1 1/2 oz.	.98	1.04	1.11	1.17	1.24	1.33		
2	21 or 23	1 1/2 oz.	1.06	1.12	1.18	1.24	1.33	1.47		
2 1/4	20 or 19	2 oz.	1.19	1.24	1.31	1.38	1.47	1.58		
2 1/2	20 or 19	2 oz.	1.34	1.41	1.49	1.56	1.67	1.78		
3	20 or 19	3 oz.	1.56	1.63	1.71	1.82	1.94	2.06		
3 1/2	20 or 19	3 oz.	1.89	1.97	2.04	2.19	2.36	2.58		
4	20 or 19	4 oz.	2.29	2.41	2.56	2.73	2.94	3.16		

Saws between lengths as above take same price as next longer length. Special lengths made only to order and shipped from factory. If mail shipment, send postage extra, 1 cent an ounce.

No. 9M59430 Fulton Band Saws. Not brazed. Carried in stock and can be shipped with other goods from Chicago.

Width, inches	1/2	3/4	1	1 1/4	1 1/2	2
Price, per foot	3 1/2c	4c	5c	6c	7c	8c
Width, inches	3/4	1	1 1/4	1 1/2	2	2 1/4
Price, per foot	7c	8c	9c	10c	12c	14c

No. 9M59440 Silver Solder for Brazing Band Saws. We do not sell less than one ounce. Price, per ounce...\$2.00

Fulton Circular Mill Saws, Brazed Band Saws and Extra Points, Holders and Wrenches for Inserted Tooth Saws are shipped direct from saw factory in Michigan; all other goods on this page are shipped from our Chicago store.

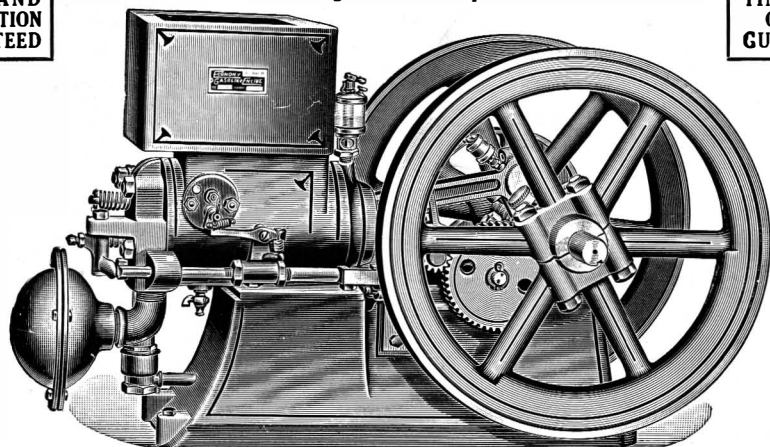
GASOLINE ENGINES

SIMPLE, DURABLE, POWERFUL, ECONOMICAL, AT REASONABLE PRICES

SIXTY DAYS'
TRIAL AND
SATISFACTION
GUARANTEED

"THE ECONOMY"
The Ideal Engine for the Shop or Farm.

THERE IS NO
TIME LIMIT
ON OUR
GUARANTEE



STATIONARY ENGINES.

No. 11M4510 Two - Horse Power Engine, complete.	Price.	\$ 42.95
No. 11M4511 Four-Horse Power Engine, complete.	Price.	74.75
No. 11M4512 Six - Horse Power Engine, complete.	Price.	104.45
No. 11M4513 Eight-Horse Power Engine, complete.	Price.	168.95
No. 11M4514 Ten - Horse Power Engine, complete.	Price.	243.45

SHIPPED FROM OUR FACTORY AT SPARTA, MICH.

OUR GUARANTEE

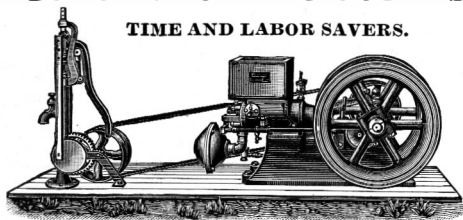
We guarantee the Economy Gasoline Engine to be absolutely perfect, to be made of the best materials by skilled workmen, and we will replace at any time any parts giving out due to defective materials or workmanship; that they are thoroughly inspected and tested before being shipped and will reach destination in perfect condition; that they will develop their full rated horse power and speed and that they are equal to any other equal rated horse power engine on the market; that you will save considerable money and be entirely satisfied with your purchase; if not you may return the engine and we will send you back your money, together with any freight charges you have paid.

WE GUARANTEE THESE ENGINES TO BE EQUAL TO ENGINES
SELLING FOR TWICE OUR PRICE

Guaranteed Horse Power	Shipping Weight	Bore	Stroke	Diameter of FlyWheel	Weight of FlyWheel	Diameter of Crank Shaft	Diameter and Face of Pulley	Height of Engine	Floor Space Occupied by Engine	Speed of Engine in Rev. per Min.
2	550 lbs.	4 in.	6 in.	22 in.	65 lbs.	1 1/2 in.	8 x 4 in.	25 1/2 in.	40 x 21 1/2 in.	450
4	750 lbs.	4 1/2 in.	9 in.	26 in.	135 lbs.	1 3/4 in.	12 x 6 in.	27 1/2 in.	47 x 29 in.	400
6	1,050 lbs.	5 1/2 in.	10 in.	30 in.	185 lbs.	2 in.	16 x 8 in.	33 in.	55 1/2 x 31 in.	375
8	1,750 lbs.	6 1/2 in.	12 in.	36 in.	215 lbs.	2 1/4 in.	16 x 10 in.	38 in.	61 1/2 x 35 1/2 in.	350
10	2,650 lbs.	7 1/2 in.	14 in.	42 in.	370 lbs.	2 1/2 in.	18 x 12 in.	44 in.	70 1/2 x 38 in.	300

ECONOMY PUMPING OUTFITS.

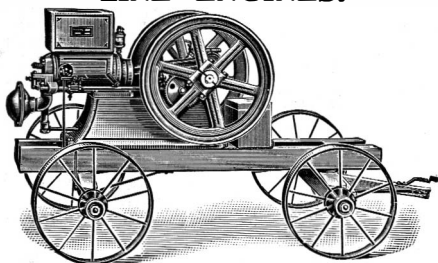
TIME AND LABOR SAVERS.



PRICES.

No. 11M4550 Two-Horse Power Pumping Outfit, engine, pump jack and belt.	Price.....	\$ 46.95
No. 11M4551 Four-Horse Power Pumping Outfit, engine, pump jack and belt.	Price.....	78.75
No. 11M4552 Six-Horse Power Pumping Outfit, engine, pump jack and belt.	Price.....	108.45
No. 11M4553 Economy Back Geared Pump Jack. Weight, 75 pounds.	Price.....	5.25

ECONOMY PORTABLE GASOLINE ENGINES.



It is a great convenience to have an engine that you can pull from place to place. You can use it in the barn to grind feed, cut fodder and shell corn. You can take it to the house to run the cream separator, washing machine and churn, or when the wind does not blow it will pump water. These outfits are fully guaranteed and are shipped on sixty days' trial. The trucks are made for rough use, with wide tire metal wheels. The engine is mounted on strong wood channels, well braced. These outfits are fully guaranteed and besides being used for portable work they may be taken from the trucks and used for inside work.

PRICES.

No. 11M4535 Two-Horse Power Engine. Handtruck. Weight, 680 pounds.	Price.....	\$ 52.95
No. 11M4536 Four-Horse Power Engine. Handtruck. Weight, 850 pounds.	Price.....	85.95
No. 11M4537 Six-Horse Power Engine. One-horse truck. Weight, 1,625 pounds.	Price.....	134.45
No. 11M4538 Eight-Horse Power Engine. Two-horse truck. Weight, 2,325 pounds.	Price.....	202.95
No. 11M4539 Ten-Horse Power Engine. Two-horse truck. Weight, 3,325 pounds.	Price.....	279.45

RUN YOUR MACHINERY BY A GASOLINE ENGINE

THE ECONOMY is especially adapted for shop work and will run your machinery more economically than steam. If you don't know what size engine you need, write us telling what you want to run and we will give the advice of our engineers without any charge and with no obligation on your part to buy an engine from us. We will be glad to do this if you will tell us what you want to do, and address "Dept. 11, Mechanical Engineers, care of Sears, Roebuck and Co."

OUR GASOLINE ENGINE FACTORY. We own and operate the Economy Gasoline Engine factory. Only the best materials are used in the construction of the engines. They are as simple as it is possible to make them. Every part is perfectly adjusted, is interchangeable and can be replaced with very little trouble and at small expense. The size of the cylinder, length of connecting rod, diameter of crank shaft and weight of fly wheels, as well as the intake and exhaust valves, have all been carefully worked out to give the best results. The igniter is of the make and break type, the governor of the hit and miss type. Both were especially designed for the Economy Engine. They control the fuel and spark perfectly, giving the greatest amount of speed with the least wear and tear on the engine.

PRICE. We manufacture the Economy Gasoline Engines in large quantities, buy all materials in carload lots and accordingly pay little freight. We use the latest automatic machinery and base our prices on the actual cost of material and labor, adding but our one small profit. The engines are shipped direct from factory to user, which does away with all handling expense, dealers' or agents' commissions and expenses, and this is the reason our prices are way below what you pay elsewhere.

QUALITY. The Economy Gasoline Engine is equal to any engine made, no matter what engine you buy or what price you pay. It will develop as much power, do as much work and last as long as any equal rated horse power gasoline engine on the market.

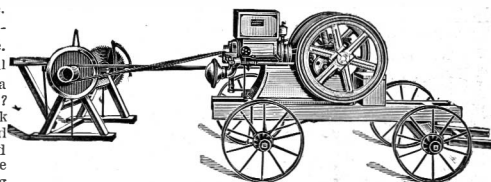
SIMPLICITY. The Economy Gasoline Engines are very simple. Anyone can run them. They are easy to operate and easily taken care of. They will not get out of order, and few or no repairs will be needed. We send full instruction telling how to run and care for the engines.

WE CAN FURNISH REPAIRS for the Economy Gasoline Engines as long as needed. All parts are interchangeable. The engines are thoroughly inspected and must develop their full rated horse power before being shipped. They are neatly painted and striped and have the appearance of engines costing two or three times their price. They are guaranteed for all time against defect in material or workmanship and we give you sixty days' free trial on your farm, with the understanding that if the engine is not perfectly satisfactory it may be returned and we will send you back your money, together with the freight charges.

ECONOMY WOOD SAWING OUTFITS.

A gasoline engine has no equal for sawing wood, it will do more work with less trouble and expense than any other power. A wood sawing outfit will very soon pay for itself in sawing wood alone. You may also use the engine for stationary work and as the engine is mounted on a truck you may haul it from place to place. Some manufacturers sell a large sawing outfit, engine and saw all mounted on one truck and ask a big price for it, but why pay a big price for an outfit that may be used for the one purpose only? The outfit quoted herewith is for the engine mounted on truck with wood saw frame and a 40-foot belt. The truck is fitted with shafts for one horse. Saw frame and belt may be loaded on the truck. The outfit is very easily set up and will saw more wood and give better results than the highest priced wood sawing outfit made and at one-half the price. For custom sawing and general farm work we recommend our 6-horse power outfit as this size will handle most any machinery used on the farm and will also take care of the light work as well. They are fully guaranteed and are sent on sixty days' trial.

Note—Engine, truck and belt are shipped from our factory at Sparta, Mich. Saw frame from the David Bradley plant, Bradley, Ill.



PRICES.

No. 11M4515 Four - Horse Power Engine and Sawing Outfit. One-horse truck. Weight, 835 pounds.	Price.....	\$129.75
No. 11M4516 Six - Horse Power Engine and Sawing Outfit. One-horse truck. Weight, 1,135 pounds.	Price.....	\$164.45

LUBRICATING OILS AND GREASES

Machine Oils.

No. 30M3358 Excelsior Machine Oil. A light oil, red in color, used for general machine lubrication. The best oil on the market.

1-gallon can.....29c
5-gallon can, per gallon.....23c
10-gallon can, per gallon.....21c
50-gallon barrel, per gal. 15c

No. 30M3360 Summer Black Oil. A heavy black oil, a good lubricant for saw mill and heavy machinery during the summer months.

1-gallon can.....24c
5-gallon can, per gallon.....18c
10-gallon can, per gallon.....15c
50-gallon barrel, per gal. 9c

No. 30M3362 Black Oil. 15 degrees cold test, not quite as heavy as No. 30M3360.

1-gallon can.....25c
5-gallon can, per gallon.....19c
10-gallon can, per gallon.....16c
50-gallon barrel, per gallon.....10c

No. 30M3364 Zero Black Oil. A thin black oil which can be used in cold weather and lubricate perfectly. An excellent saw mill oil for winter use.

1-gallon can.....26c
5-gallon can, per gallon.....20c
10-gallon can, per gallon.....18c
50-gallon barrel, per gallon.....11c

No. 30M3372 No. 1 Castor Machine Oil. A fine heavy oil, light in color. If you are using a castor machine oil, send us your next order; we can save you money.

1-gallon can.....31c
5-gallon can, per gallon.....25c
10-gallon can, per gallon.....24c
50-gallon barrel, per gallon.....17c

No. 30M3374 No. 2 Castor Machine Oil. Slightly thinner than our No. 1.

1-gallon can.....28c
5-gallon can, per gallon.....22c
10-gallon can, per gallon.....21c
50-gallon barrel, per gallon.....14c

Engine Oils.

No. 30M3348 Dynamo Engine Oil. A pale red oil, guaranteed the best engine oil made. It will not saponify. For lubricating dynamos, motors and engines of all kinds. Especially adapted for use in the Ideal engine.

1-gallon can.....34c
5-gallon can, per gallon.....28c
10-gallon can, per gallon.....26c
50-gallon barrel, per gal. 21c

No. 30M3350 No. 1 Red Engine Oil. Slightly darker than No. 30M3348; a first class oil, better than the majority of 40 and 50-cent engine oils on the market.

1-gallon can.....29c
5-gallon can, per gallon.....23c
10-gallon can, per gallon.....20c
50-gallon barrel, per gallon.....15c

Ice Machine Lubricating Oil.

No. 30M3380 A high grade oil which will flow in the coldest weather. Made especially for ice machines, but is now extensively used for windmills and other machinery in winter where a low cold test lubricating oil is necessary. It will not congeal in the coldest weather. Pale straw in color.

1-gallon can.....33c
5-gallon can, per gallon.....28c
10-gallon can, per gallon.....25c
50-gallon barrel, per gallon.....20c

Pennsylvania Automobile Cylinder Oil. For Air Cooled Gasoline Engines.

No. 30M3346 A special high fire test cylinder oil for air cooled auto gas engines. This oil will not burn up nor cause the pistons to stick in the cylinders because it has an extra high fire test which is necessary in an oil intended for air cooled gas engine lubrication. This is the best oil that can be made for air cooled engines and we will match it against any oil on the market no matter what the name, make or price. Order a 5-gallon can of this oil and use a gallon of it or more and if you do not find it the finest and most satisfactory oil that you have ever used, return the balance of the oil and we will return to you the full price paid, making no charge for the oil used.

1-gallon can.....50c
5-gallon can, per gallon.....35c
30-gallon half barrel, per gallon.....29c
50-gallon barrel, per gallon.....26c

Automobile Cylinder Oil.

For Water Cooled Gasoline Engines.

No. 30M3347 A perfect automobile cylinder oil must have a high fire test and be as free from carbon as it is possible to make without reducing the fire test. An oil of a low fire test, of which there are many on the market, will be consumed by the heat of the exploded gasoline before it has performed its work of lubricating the cylinder. An oil that contains an excess of carbon will leave a heavy deposit in the cylinders, causing a loss of power and wear on the cylinders. Our Automobile Cylinder Oil has a very high fire test and is as free from carbon as it is possible to make. Use this oil and save repair bills and with perfect lubrication you get the maximum power of the engine. Even if you have been paying as high as \$1.00 a gallon for oil, send us a trial order for this Automobile Cylinder Oil if you want the best oil that can possibly be made for gasoline engines.

1-gallon can.....46c
5-gallon can, per gallon.....31c
30-gallon half barrel, per gallon.....25c
50-gallon barrel, per gallon.....22c

Cylinder Oils.

The following Cylinder Oils are made from Pennsylvania Premium Crude. This crude is settled before distilling, and refiltered after distilled, doing away with all foreign matter. The tests of these oils, such as fire, flash, viscosity and gravity, are unexcelled.

No. 30M3336 Highest Test Cylinder Oil. Made from the finest stock. Amber color. Nothing better on the market. May be used in any engine, high or low steam pressure.

1-gallon can.....48c
5-gallon can, per gallon.....42c
10-gallon can, per gallon.....40c
50-gallon barrel, per gallon.....35c

No. 30M3338 Special Cylinder Oil. A dark green compound oil, especially adapted for low steam pressure.

1-gallon can.....44c
5-gallon can, per gallon.....38c
10-gallon can, per gallon.....35c
50-gallon barrel, per gallon.....30c

No. 30M3340 Extra Cylinder Oil. For high steam pressure. We are shipping this oil in competition with 60-cent cylinder oils. Dark green in color. The following prices include package:

1-gallon can.....44c
5-gallon can, per gallon.....38c
10-gallon can, per gallon.....35c
50-gallon barrel, per gallon.....30c

Fireproof Cylinder Oil.

No. 30M3341 Fireproof XXX Cylinder Oil. Black in color. The most wonderful and powerful oil ever compounded. Used in any engine, high or low pressure, and lubricates perfectly. You will always find a film of oil inside of cylinders where this oil is used, also on the rings; packing and piston rods are so thoroughly lubricated they show comparatively little wear, no matter how high the steam pressure. One barrel of Fireproof XXX Cylinder Oil will go as far as two barrels of any other oil. We guarantee that after you have once used this oil you will never use any other. We will accept your order for a barrel or can of this oil with the understanding that if not found as represented, we will allow you to return the balance of the oil and return your money, making no charge for the oil used. The following prices include package:

1-gallon can.....49c
5-gallon can, per gallon.....43c
10-gallon can, per gallon.....41c
50-gallon barrel, per gallon.....36c

Gasoline Engine Cylinder Oil.

No. 30M3342 Special Compounded Cylinder Oil for Gas and Gasoline Engines. Red in color. This is strictly high grade oil and guaranteed. Do not experiment with cheap oils and ruin the cylinder of your engine.

1-gallon can.....46c
5-gallon can, per gallon.....31c
10-gallon can, per gallon.....29c
50-gallon barrel, per gal. 22c

Graphite Cup Grease.

No. 30M3489

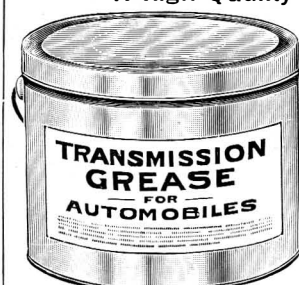
Furnished in three consistencies: Soft, intended for general use on crank pins, cross heads, valve motions, eccentrics, slides, pillow blocks, main journals, automobile transmissions, etc. Medium is adapted for screw cups or in compression cups having extra strong springs.

Can also be used on open bearings where oil opening is moderately large. Hard, a good stiff grease for heavy open bearings and places where a high melting point is essential. Can be used in screw cups and is especially suitable for upright shafting, cams, spindles, etc. Be sure to mention kind of grease wanted.

1-pound can.....\$0.20
5-pound can......38
10-pound can.....1.52
25-pound can.....3.60



A High Quality Grease.



No. 30M3455 This grease is known to the world over as the best grease for automobile use. We cannot use the manufacturer's name for the reason that we are selling it at a greatly reduced price; the same grease is sold under its regular brand name at 25 cents a pound.

Water will not mix with this grease and it remains in the same consistency summer or winter; it never gets hard nor gums. Less power is required to run the gears and there is almost no wear when this grease is used. Furnished in No. 1 consistency; no heavier grease should be used. Guarantee on every can.

5-pound pail, per pound.....16c
10-pound pail, per pound.....14c
25-pound pail, per pound.....13c

A Good Quality Grease.

No. 30M3456 For use in transmission of automobiles in the sliding gear and planetary type; also used for lubricating differential gears. We are selling this grease for about one-half what is usually charged for a similar grade.

5-lb. can, 25-lb. can, per lb. 7c
No. 1/2. For winter use... 11c
No. 3. For summer use.. 11c

No Noise Transmission Grease.

No. 30M3457 If the transmission or differential gears of your car are somewhat worn, causing them to make considerable noise, then give our No. Noise Grease a trial. This grease will not make new gears for you but it will stop the noise to a great extent. Its peculiar properties have the effect of deadening gear noises and at the same time lubricate as well as any of our other greases.

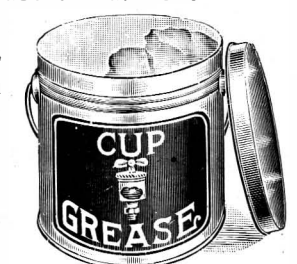
6-pound pail, per pound.....17c
12-pound pail, per pound.....15c
30-pound pail, per pound.....14c

Cup Grease or Hard Oil.

No. 30M3390

Used for high grade motor grease, shaftings and journal boxes. No. 2 soft, No. 3 medium, No. 4 hard. When ordering, please mention kind wanted.

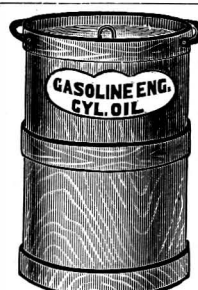
Per 10-lb. pail.....\$0.70
Per 25-lb. pail. 1.60
Per 50-lb. pail. 3.00



Economy Cup Grease.

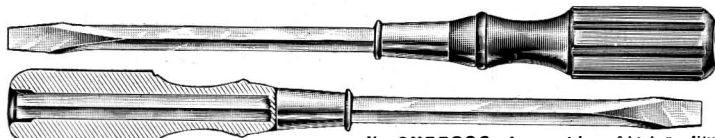
No. 30M3392 A special high grade cup grease recommended for use in stationary, marine and automobile gasoline engines.

1-pound can.....\$0.15
5-pound can......50
25-pound can.....2.00



FULTON DROP FORGED SQUARE SHANK SCREWDRIVER.

OUR PRICE, 14 CENTS; USUAL 25-CENT VALUE.



Made strong and substantial and will give good service. Shank is one solid piece of steel. Shank extends entirely through handle, is flattened on top and it cannot turn and handle can't come off. Handles are hardwood, finished in black. Ferrules are polished steel, immovably shrunk on.



Length, blades, inches.....	2 1/2	4	6	8	10	FULTON GOOD SERVICE TOOLS
Size, square shank, inch.....	7-32	1/4	5-16	11-32	3/8	
Price, each.....	14c	18c	26c	34c	42c	

GOODSELL'S RATCHET SCREWDRIVERS.



No. 9M55836 Very strong and durable. Outlast half dozen of the ordinary kind. Blades, dogs and springs made of tool steel; ratchet teeth are deep and strong, handles are stained and polished hardwood. Turn & knurled ferrule sets blade rigid or ratchet to work right or left. At prices below, these genuine Goodsell's Ratchet Screwdrivers are unmatched.

Blade, inches.....	4	5	6
Price, each.....	33c	38c	42c
Blade, inches.....	8	10	
Price, each.....	47c	52c	

GOODSELL'S AUTOMATIC SCREWDRIVER.



No. 9M55844 Works equally well as a spiral, ratchet or plain screwdriver. Excellent value for the price. Three tempered steel blades. Length, closed, 7 1/2 inches. Stained hardwood handle.

Price.....66c

GOODSELL'S DOUBLE SPIRAL AUTOMATIC SCREWDRIVER.



No. 9M55860 Strong and practical. Has two separate spirals, one to drive other to draw screws. Three steel blades, stained hardwood handle. Length, closed, 9 in.

Price.....\$1.06

DRILL ATTACHMENT FOR AUTOMATIC SCREWDRIVERS.

Convert an automatic screwdriver into an automatic drill.

No. 9M55864 Size 1. Fits Screwdriver No. 9M55844. Price, for chuck and 8 drill points, as illustrated.....43c

No. 9M55888 Size 2. Fits Screwdriver No. 9M55860. Price, for chuck and 8 drill points, as illustrated.....44c



FULTON GUARANTEED FILES

Made of crucible cast steel, hardened and tempered by a superior process, and will cut faster, last longer, wear better and give more general satisfaction than any other files made. You get more real value for your money when you buy a Fulton file than when you buy any other kind. Thousands of mill men, machinists and professional filers will use no other.

The Kind That Cuts.



The Kind to Buy.

FULTON MILL FILES.

No. 9M58620

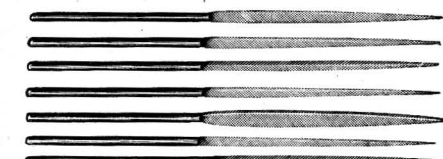
Size, inches.....	6	8	10	12	14	16
Price, each.....	5c	8c	\$0.10	\$0.12	\$0.18	\$0.26
Per dozen.....	59c	88c	1.14	1.42	2.10	3.02

FULTON SQUARE BASTARD FILES.

No. 9M58638

Size, inches.....	4	5	6	8	10	12
Price, each.....	7c	8c	9c	\$0.10	\$0.14	\$0.18
Per dozen.....	76c	82c	92c	1.10	1.48	2.04

FULTON ASSORTED NEEDLE FILES.



Equal to the best imported files. Package contains one dozen, two each—flat, square, round, half round, and oval; one each—three square and knife. We do not break packages.

No. 9M58694 Price, per dozen, assorted as above.....67c

GENUINE L. COE'S KNIFE HANDLE MONKEY WRENCHES.



Usual Price, 38c price, 50c

No. 9M3325 Has hardened steel bar, head and screw, case hardened jaw and handle frame, riveted hardwood side handles. Strongest and best finished wood handle wrench made. Fully warranted.

Size, inches.....	6	8	10	12	15	18	21
Open, in.....	1 1/4	1 3/4	2 1/4	2 3/4	3 1/4	3 3/4	4 1/4
Price.....	38c	45c	54c	63c	\$1.09	\$1.35	\$1.64

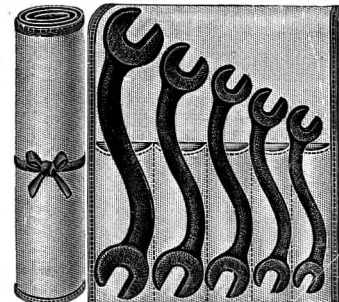
GENUINE L. COE'S STEEL HANDLE MONKEY WRENCHES.



No. 9M3301 Has cold swaged hardened steel bar and head, case hardened jaw and hardened steel ball bearing screw. Handle is cross riveted. Construction is strong and durable. Fully warranted.

Length, inch.....	12	15	18	21
Opens, inches.....	2 1/4	2 3/4	3	4
Price.....	65c	\$1.15	\$1.45	\$1.75

GENERAL PURPOSE WRENCH SET.



Drop forged of high carbon steel. No mechanic or farmer can afford to be without a set of these wrenches and the price brings them within the reach of all.

Size of openings	Length
3/4 and 7-16 inch	6 1/4 inches
1/2 and 9-16 inch	7 1/2 inches
5/8 and 11-16 inch	8 1/2 inches
3/4 and 13-16 inch	9 1/2 inches
7/8 and 1 inch	10 1/2 inches
No. 9M3319 Price, per set of five wrenches with canvas roll.....	69c

MACHINISTS' BALL PEIN HAMMERS.

Best cast steel, half polished, with handles. Handles not included in weight.



Order by No. 9M3132 State weight.

Wt.....	12oz.	1lb.	1 1/4lbs.	1 1/2lbs.	1 3/4lbs.	2lbs.
Price.....	32c	35c	38c	41c	45c	49c

MACHINISTS' HICKORY HAMMER HANDLES.

No. 9M3135 Price, each.....3c
Per dozen.....34c

POLISHED RIVETING HAMMERS.

No. 9M3100

Weight.....	7oz.	9oz.	12oz.	18oz.
Price.....	23c	25c	27c	29c

HICKORY RIVETING HAMMER HANDLES.

No. 9M3105 Price, per doz.....32c; each.....3c

OIL STONES FOR MECHANICS.

Genuine White Washita Oil Stones.



A fine tough grit of uniform texture, no hard spots; a soft, sharp, fast cutting stone that will not glaze. The most satisfactory stone for carpenters' and general woodworkers' tools. Without case.

Weight, about, pounds.....1 1/2

No. 9M58720 Price.....33c 48c

Extra White Washita Oil Stone, same as above except medium hard, fine grit. For tools of hard temper requiring a very smooth edge. Weight, about, pounds.....1 1/2

No. 9M58722 Price.....35c 51c

Standard White Washita Oil Stone, extra selected quality. The regular 48-cent kind elsewhere. Without case. Weight, about, pounds.....1 1/2

No. 9M58730 Price.....22c

Soft Arkansas Oil Stones, for fine edged, delicate tools. Smoothest cutting stone on the market and the best for surgeons', wood carvers', tool makers' and fine mechanics' tools that require a smooth keen edge. Without case. Weight, about, lbs.....1 1/2

No. 9M58740 Price.....88c \$1.32

FLINT EDGE FULTON SPECIAL HACK SAW BLADES

FLINT EDGE FULTON SPECIAL

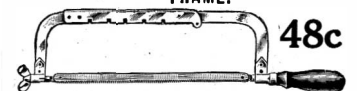
Fastest cutting hack saw blades made and the only ones that will cut tool steel, phosphor bronze and other hard metals. Flint Edge Fulton Special Blades are not intended to be filed, but are tempered so hard that they will last four times as long as an ordinary blade filed as they come from the factory and yet are so tough that they will stand more abuse than any other hack saw blades made. Flint Edge Fulton Special Hack Saw Blades are made of a special high carbon steel, the edges are tempered extra hard, and the thousands of satisfied users who will have no other kind are the very best proof of their superior quality. Send us a trial order. Guaranteed satisfactory.

The best Hack Saw Blades made by anyone at any price. No. 9M59094 Flint Edge Fulton Special Hack Saw Blades. Length, inches.....8 45c 50c 55c 65c The lowest priced high grade Hack Saw Blades made.

No. 9M59090 Fulton Hack Saw Blades. 16 teeth to the inch. Made from best clock spring steel, soft on the back with highly tempered teeth. Unbreakable and preferred by many.

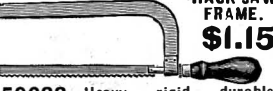
Length, inches.....	8	9	10	12
Price, per dozen.....	30c	35c	40c	50c

NICKEL PLATED EXTENSION HACK SAW FRAME.



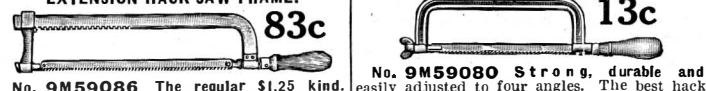
No. 9M59084 Usual price, 75 cents. Strong and durable, adjustable to four angles or any length from 8 to 12 inches. Price includes one 8-inch blade. Price.....48c

GOODSELL'S HEAVY ADJUSTABLE HACK SAW FRAME.



No. 9M59088 Heavy, rigid, durable frames, made of steel 1 1/2 x 3/4 inches, nickel plated. Throat, 3 1/2 inches deep, faces blades in four directions. Holds blades 8 to 12 inches. Price, including one 10-inch blade.....\$1.15

"STIFF" AND RIGID" NICKEL PLATE JAPANNED ADJUSTABLE HACK SAW FRAME.



No. 9M59086 The regular \$1.25 kind. Made of steel, nickel plated. Faces blades in four directions. Holds blades 6 to 12 inches. Price, including one 10-inch blade.....83c



No. 9M59080 Strong, durable and easily adjusted to four angles. The best hack saw frame made for the money and an excellent value at our low price. Usually sold elsewhere for 25 cents. Our price with one 8-inch blade.....13c

STARRETT'S MACHINISTS' TOOLS

MACHINISTS' STEEL SQUARE.

No. 9M57380 An accurate, reliable tool at a very low price. Size 10 1/2 x 1 1/2 inch. Graduated in 1/16, 1-32 inch spaces. Nicely polished and finished. Price...\$39c

HANDY STEEL SQUARES.

A light, convenient tool. Size 10 1/2 x 1 1/2 inch. Graduated in 1/16, 1-32 inch spaces. Nicely polished and finished. Price...\$41c

No. 9M57384 Nickel plated. Price...\$41c
No. 9M57386 Blue finish. Price...\$43c

SPRING TEMPERED STEEL RULES.

Thickness, 18-gauge or 3-64ths inch.

No. 9M56826 Starrett's No. 300, graduated 32nds and 64ths on face, 8ths and 16ths on back. Price...\$2.08
No. 9M56828 Starrett's No. 301, graduated 12ths, 20ths, 24ths, 48ths, 50ths and 100ths on face; 14ths, 16ths, 28ths, 32nds and 64ths on back. Length, inches... 6 9 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96. Price, each... 18c 25c 33c 47c 90c

No. 9M56830 IMPROVED HOOK RULES Starrett's No. 120, graduated 32nds and 64ths on face, 8ths and 16ths on back. Length, inches... 6 9 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96. Price, each... 74c \$1.03 \$1.29

No. 9M56836 Starrett's No. 391, graduated in 14ths, 20ths, 24ths and 32nds. Price...\$2.9c

SPRING TEMPERED STEEL CENTER GAUGE. No. 9M56836 Starrett's No. 391, graduated in 14ths, 20ths, 24ths and 32nds. Price...\$2.9c

IMPROVED SCREW PITCH GAUGES. No. 9M56846 Starrett's No. 40, Has 22 pitches, 9 to 40. Price...\$82c
No. 9M56850 Starrett's No. 4, Has 24 pitches, 4 to 30. Price...\$97c

UNIVERSAL SURFACE GAUGES. No. 9M56902 Starrett's No. 57, With latest improvements. With 3-in. base and 9-in. spindle, size A. Price...\$2.08
With 3-in. base and 9 and 12-in. spindles, size B. Price...\$2.30
With 3 1/2-in. base and 12-in. spindle, size C. Price...\$2.40
With 3 1/2-in. base and 12 and 18-in. spindles, size D. Price...\$2.78

OUR PRICES ON THESE GENUINE STARRETT'S TOOLS SAVE YOU MONEY. WE CARRY THEM ALL IN STOCK AND SHIP PROMPTLY.

STARRETT'S SPEED INDICATORS.

No machinist, saw mill owner or manufacturer should be without one of these speed indicators. A speed indicator enables you to gear up machinery correctly, order proper size pulleys, saws, etc. These indicators show the exact speed at which any shaft is running.

No. 9M56860 No. 9M56870 No. 9M56880
Starrett's No. 104, Nickel plated, with metal handle. Price...\$33c
No. 9M56860 Improved Speed Indicator. Starrett's No. 106, Nickel plated, with rosewood handle. Graduations show every revolution. Price, with two rubber tips...\$1.19
No. 9M56880 Registering Speed Indicator. Starrett's No. 107, Automatically registers hundreds as well as units and tenths. Nickel plated, with hard rubber handle. Price, with two rubber tips...\$2.46
No. 9M56881 Leatherette Case for either of the above indicators. Price...\$40c

Starrett's No. 104, Nickel plated, with metal handle. Price...\$33c
Starrett's No. 106, Nickel plated, with rosewood handle. Graduations show every revolution. Price, with two rubber tips...\$1.19
Starrett's No. 107, Automatically registers hundreds as well as units and tenths. Nickel plated, with hard rubber handle. Price, with two rubber tips...\$2.46
Starrett's No. 108, Leatherette Case for either of the above indicators. Price...\$40c

Starrett's No. 104, Nickel plated, with metal handle. Price...\$33c
Starrett's No. 106, Nickel plated, with rosewood handle. Graduations show every revolution. Price, with two rubber tips...\$1.19
Starrett's No. 107, Automatically registers hundreds as well as units and tenths. Nickel plated, with hard rubber handle. Price, with two rubber tips...\$2.46
Starrett's No. 108, Leatherette Case for either of the above indicators. Price...\$40c

STARRETT'S COMBINATION SETS.

THE MOST COMPLETE MACHINISTS' COMBINATION SETS EVER MADE. Have hardened blades graduated on both sides with figures reading both ways. A combination of four useful tools in one. Reading from left to right, first is a miter head or stock, next a bevel protractor head, next a level attachment for use with the protractor, and next, on the end, is the center head.

No. 9M56812 Starrett's No. 9 Combination Set, complete as illustrated. With scale, inches... 9
Price, per set...\$2.67
With scale, inches... 12
Price, per set...\$2.84
With scale, inches... 18
Price, per set...\$3.39
With scale, inches... 24
Price, per set...\$3.74
No. 9M56814 Starrett's Combination Square No. 11, Scale, center head and miter head. With scale, inches... 6 9 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96. Price, per set...\$1.08 \$1.26 \$1.44 \$1.96 \$2.32
No. 9M56818 Starrett's No. 11 Combination Square. Scale and miter head only. Price, per set... 72c 89c \$1.07 \$1.61 \$1.98

PERFECTED FIRM JOINT SCREW ADJUSTING CALIPERS.

Quick and accurate adjustment for fine work.

No. 9M56908 Outside Caliper, Starrett's No. 34, 4-in. Price \$0.62
No. 9M56906 Inside Caliper, Starrett's No. 35, 4-in. Price .89
6-in. Price 1.06
8-in. Price 1.23
10-in. Price 1.42
12-in. Price 1.59
14-in. Price 1.76
16-in. Price 1.96
18-in. Price 2.16
20-in. Price 2.46
No. 9M56908 24-in. Price 2.46
No. 9M56906 24-in. Price 2.46

IMPROVED FIRM JOINT CALIPERS.

Joint held with screw which adjusts tension to suit user.

No. 9M56912 Outside Caliper, Starrett's No. 26, 4-in. Price .34
No. 9M56914 Inside Caliper, Starrett's No. 27, 4-in. Price .39
6-in. Price .46
8-in. Price .55
10-in. Price .64
12-in. Price .72
14-in. Price .81
16-in. Price .90
18-in. Price .99
20-in. Price 1.08
24-in. Price 1.23

YANKEE CALIPERS.

Light but reliable, with spring or solid nut.

No. 9M56952 Outside Caliper, Starrett's No. 79, 4-in. Price .34
No. 9M56950 Inside Caliper, Starrett's No. 73, 4-in. Price .39
6-in. Price .46
8-in. Price .55
10-in. Price .64
12-in. Price .72
14-in. Price .81
16-in. Price .90
18-in. Price .99
20-in. Price 1.08
24-in. Price 1.23

LOCK JOINT CALIPERS.

Very sensitive, quickly adjusted and firmly locked.

No. 9M56916 Outside Caliper, Starrett's No. 38, 4-in. Price \$0.61
6-in. Price .67
8-in. Price .86
10-in. Price 1.03
12-in. Price 1.24
No. 9M56918 Inside Caliper, Starrett's No. 39, 4-in. Price .61
6-in. Price .67
8-in. Price .86
10-in. Price 1.03
12-in. Price 1.24

HERMAPHRODITE CALIPERS.

Firm joint, Starrett's No. 41.

Size, inches... 4 6 8 10
Price... 44c 55c 68c 82c
No. 9M56928 Lock Joint, Starrett's No. 42, 4-in. Price .69
6-in. Price .78
8-in. Price .93
10-in. Price 1.12
12-in. Price 1.24

EXTENSION DIVIDERS AND CALIPERS.

Starrett's No. 85, complete as illustrated. Head and arms are best malleable iron, points are hardened steel. 7-inch size

scribes a 22-inch circle, calipers 11 inches outside and 12 inches inside. 9-inch size scries a 30-inch circle, calipers 14 in. outside and 16 in. inside. Size, in... 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65 67 69 71 73 75 77 79 81 83 85 87 89 91 93 95 97 99 101 103 105 107 109 111 113 115 117 119 121 123 125 127 129 131 133 135 137 139 141 143 145 147 149 151 153 155 157 159 161 163 165 167 169 171 173 175 177 179 181 183 185 187 189 191 193 195 197 199 201 203 205 207 209 211 213 215 217 219 221 223 225 227 229 231 233 235 237 239 241 243 245 247 249 251 253 255 257 259 261 263 265 267 269 271 273 275 277 279 281 283 285 287 289 291 293 295 297 299 301 303 305 307 309 311 313 315 317 319 321 323 325 327 329 331 333 335 337 339 341 343 345 347 349 351 353 355 357 359 361 363 365 367 369 371 373 375 377 379 381 383 385 387 389 391 393 395 397 399 401 403 405 407 409 411 413 415 417 419 421 423 425 427 429 431 433 435 437 439 441 443 445 447 449 451 453 455 457 459 461 463 465 467 469 471 473 475 477 479 481 483 485 487 489 491 493 495 497 499 501 503 505 507 509 511 513 515 517 519 521 523 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CHICAGO

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DOLLARS	CENTS
---------	-------

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IF YOU DO NOT USE THIS ORDER BLANK AT ONCE, PRESERVE IT FOR FUTURE USE

WE show here just a few recent letters
of the many hundreds received by
the manufacturers of "Expert" Lathes

GARAGE AND MACHINE SHOP.

Gentlemen:—

Mentone, Ind., Feb. 6, 1911.

Some months ago I purchased one of your 13-Inch Engine Lathes, and it gives me pleasure to inform you that as to strength, weight and durability it far excels all previous lathes I have handled.

Wishing to thank you for your kindness, I remain,

Yours very truly,

B. E. LEWIS, Prop.

Providence, R. I., Feb. 5, 1911.

Gentlemen:—

The 12-Inch Screw Cutting Engine Lathe purchased of you is perfectly satisfactory and in a class by itself.

Yours truly,

WALTER E. WILLIAMS.

La Porte, Ind., Feb. 5, 1911.

Gentlemen:—

I am very much pleased with the 11-Inch Engine Lathe, having found it exceptionally rigid and accurate on all classes of work up to its capacity.

Yours truly,

WM. H. BAUCH.

Xenia, Ohio, Feb. 7, 1911.

Gentlemen:—

I am well pleased with the 13-Inch Engine Lathe bought of you a short time ago. It is a handy all around lathe for most any kind of work within its capacity. The reverse is very handy, the lead screw is good, and the countershaft is excellent. I think it is a good, solid, well built lathe.

Yours respectfully,

C. L. WEAVER.